

Transmitted Via Electronic Mail

April 1, 2016

Ms. Alice Yeh
Remedial Project Manager
U.S. Environmental Protection Agency, Region II
Emergency and Remedial Response Division
290 Broadway, 19th Floor
New York, NY 10007-1866

Re: Combined Sewer Overflow/Stormwater Outfall Program Total TCDD Verification Memorandum

Dear Ms. Yeh:

Please find enclosed *CSO/SWO Total TCDD Verification Memorandum, Revision 1* dated April 2016 and prepared in accordance with Worksheet #36 of the Combined Sewer Overflow (CSO) / Stormwater Outfall (SWO) Quality Assurance Project Plan (QAPP). Revision 1 of this memorandum incorporates changes resulting from comments contained in the following documents:

- Phase I Data Usability Report Aug. 2014- EPA Comments USEPA provided initial comments on the DQUAR on August 6th, 2015.
- Tierra Responses to USEPA Comments on DQUAR_Final 09.18.15 Tierra submitted a Response to Comment (RTC) document on September 18, 2015, which provided responses to USEPA comments received on August 6th, 2015.
- CDM Smith Comments_CSO-SWO Phase I Tierra Response to Comments CDM Smith (EPA Contractor) submitted final comments to the DQUAR on November 12, 2015.

By submittal of this memorandum, Tierra is not subscribing to the usefulness of the estimated Total TCDD value for reasons previously discussed and presented to USEPA

If you have any questions regarding the attached report, please feel free to contact me at 732-246-5920.

Sincerely,

Brian Mikucki Project Scientist

Bi think.

On behalf of Occidental Chemical Corporation

(as successor to Diamond Shamrock Chemicals Company)

Enclosures

Cc: Enrique Castro, Tierra Solutions, Inc.

Diane Waldschmidt, Environmental Data Services

Two Tower Center Blvd. 10th Floor East Brunswick, NJ 08816

TOTAL TETRACHLORINATED DIBENZO-P-DIOXIN MEMORANDUM Revision 1 March 30, 2016

SITE: CSO/SWO Phase I

SAMPLE DELIVERY GROUPS: PR101, PR102, PR105, PR106, PR-107, PR109, PR110, PR125, PR126, PR127, PR134, PR135, PR137, PR138, PR140, PR141, PR142, PR145, PR146, PR147, PR149, PR150

A total of 53 samples were collected and submitted to Vista Analytical Laboratory for analysis in support of Phase I of Tierra's Combined Sewer Overflow/Stormwater Outfall Investigation (CSO/SWO). The samples were analyzed via USEPA method 1613B to determine the concentrations of 2,3,7,8-substituted polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDFs). The purpose of this reported is to summarize the findings upon completion of verification of total tetra chlorinated dibenzo-p-dioxin (TCDD) results reported for the CSO/SWO investigation.

The verification standard operating procedure "Verification of Total Tetra-Chlorinated Dibenzo-p- Dioxin Results", Rev. 2, 02/25/2016, was used to perform the total TCDD verification.

Note: Although results for other total dibenzo-p-dioxins (chlorinated levels penta, hexa and hepta) as well as dibenzo furans (chlorination levels tetra through hepta) reside in the existing database for these sample delivery groups, they have not been reviewed using the above mentioned procedure, nor have they been checked for potential transcription error.

No analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable. While strict quality control conformance provides well-defined confidence in the reported results, any analytical result will always contain some uncertainty as documented in the laboratory control limits.

The user is cautioned that the validation effort is based on the materials provided by the laboratory. Software manipulation, resulting in misleading raw data printouts, cannot be routinely detected during verification; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

Appendix A contains a cross reference table of the sample identifiers, sample delivery group and sample collection method listing the samples for which total TCDD verification was performed. Appendix B contains revised verified Form Is. Appendix C contains TCDD verification worksheets and sample calculation.

Terri Solomon

Senior Technical Specialist

Date: March 8, 2016



Verification Procedure

This verification procedure was implemented as an evaluation of total TCDD results since these values were not evaluated during the isomer specific data validation task. This process is used to assess both the completeness and accuracy of the total TCDD data set.

Total TCDD results were verified for each sample having total TCDD results reported in Phase I of the CSO/SWO Investigation. In cases where multiple analyses were performed by the laboratory for 2,3,7,8-TCDD (example: multiple dilutions due to elevated target analyte concentrations or re-analysis based on failed quality control criteria), EDS confirmed that the total TCDD value reported in the data base, as well as hardcopy data, was based on the same analysis used to derive the 2,3,7,8-TCDD value reported.

Procedure Acceptance Criteria for Verification of Total Tetra Chlorinated Dibenzo Dioxin:

- Selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin are reported for each sample.
- Integrated areas are present for both the primary and confirmation ions for all peaks, and are 2.5 times above background noise in each sample SICP.
- Instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8 –TCDD labeled analog and sample preparation information are present for each sample.

Calculation Acceptance Criteria for Verification of Total Tetra Chlorinated Dibenzo Dioxin:

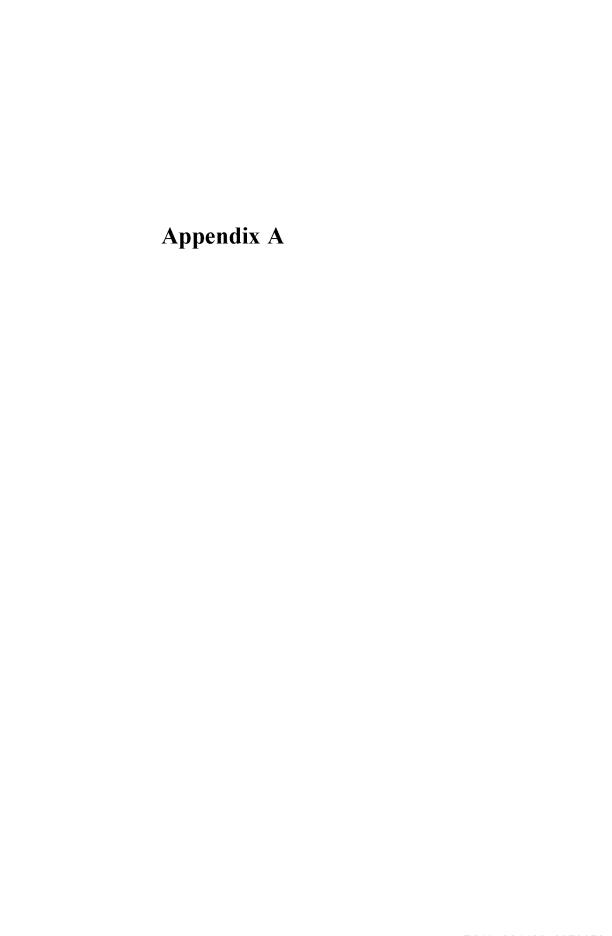
- The retention time of each non 2,3,7,8-substituted compound identified as present in the sample was within the window established by the window defining mixture, for the tetra chlorinated homologue.
- The integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample was at least 2.5 times background noise.
- All peaks meeting the requirements described above were included in the laboratory's calculation of Total TCDD.
- A minimum of one non 2,3,7,8-substituted compound identified was verified and the concentration recalculated.
- Recalculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample.

Results of Verification:

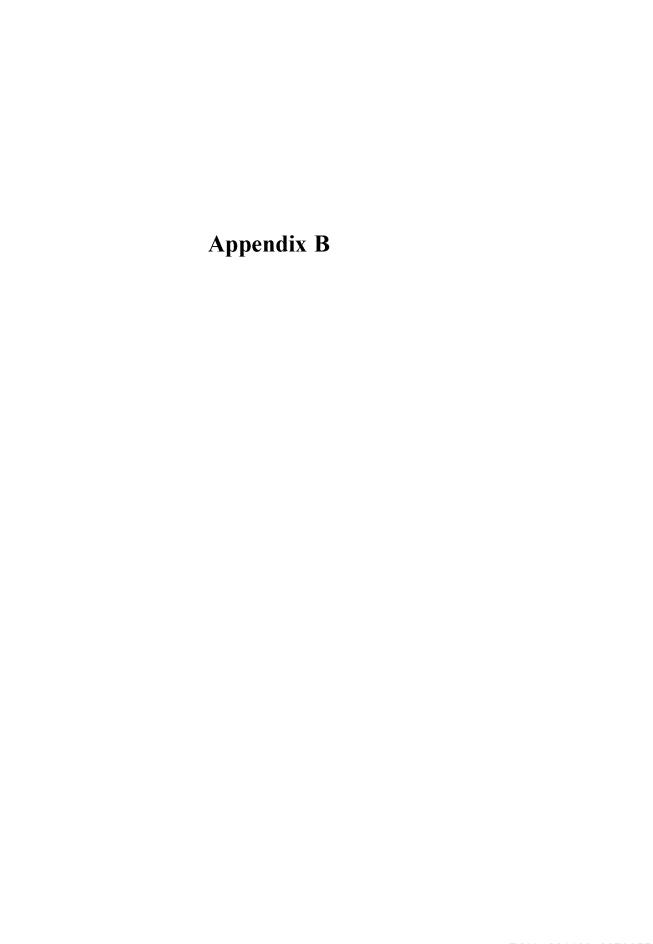
All 53 total TCDD results, reported during implementation of the Phase I CSO/SWO Investigation, were evaluated during this task. Of the 53 samples evaluated for this program, four results are recommended for editing based on the results of the total TCDD result verification task. The affected samples and associated results are provided in the Table 1 below. Total TCDD results for these samples have been corrected in both the laboratory hardcopy data reports and United States Environmental Protection Agency (USEPA) Region 2 Main Electronic Data Deliverable (MEDD)

Table 1

		Existing	Data	New Result	Data
Sample Identification	Result Units	Result Value	Qualifiers	Value	Qualifiers
PR1LPDUP-01A	pg/g	11.5	EMPC	9.72	EMPC
PR1CSOCLYHP-02B	pg/g	14.0		12.8	
PR1HPDUP-02B	pg/g	13.8	EMPC	12.1	EMPC
PR1CSOCLYHP-01C	pg/g	19.4	EMPC	17.8	EMPC



Sampling Method	Blank	SDG	Sample ID
Camping Metrica	Rinse Blank		PR101CFRB
	Kinsc Diank	I KIOI	PR101TLC
			PR101CFFB
			PR101WWFB
	Rinse Blank	PR102	PR101LDEB (Primary)
	, times Diamit	, 1(,,52	PR101LPEB (Primary)
			PR101LDEB (Secondary)
			PR101LPEB (Secondary)
Whole Water		PR105	PR1CSOCLYWW-01A
· · · · · · · · · · · · · · · · · · ·		, , , , , ,	PR1WWDUP-01A
HSM Particulate		PR106	PR1CSOCLYHP-01A
			PR1HPDUP-01A
HSM Dissolved		PR107	PR1CSOCLYHD-01A
7.0 2.00000			PR1HDDUP-01A
LSM Particulate		PR109	PR1CSOCLYLP-01A
			PR1LPDUP-01A
LSM Dissolved		PR110	PR1CSOCLYLD-01A
			PR1LDDUP-01A
	Rinse Blank	PR125	PR103WWFB
			PR108CFFB
			PR107CFRB
	Rinse Blank	PR126	PR103LPEB (Primary)
			PR103LDEB (Primary)
			PR103LPEB (Secondary)
			PR103LDEB (Secondary)
	Rinse Blank	PR127	PR108CFRB
Whole Water		PR134	PR1CSOCLYWW-02B
			PR1WWDUP-02B
HSM Particulate		PR135	PR1CSOCLYHP-02B
			PR1HPDUP-02B
	Rinse Blank	PR137	PR109CFRB
			PR101HLLC
HSM Dissolved		PR138	PR1CSOCLYHD-02B
			PR1HDDUP-02B
LSM Particulate	1	PR140	PR1CSOCLYLP-02B
			PR1LPDUP-02B
LSM Dissolved		PR141	PR1CSOCLYLD-02B
			PR1LDDUP-02B
	Rinse Blank	PR142	PR110CFRB
			PR109CFFB
			PR104WWFB
Whole Water		PR145	PR1CSOCLYWW-01C
			PR1WWDUP-01C
HSM Particulate		PR146	PR1CSOCLYHP-01C
			PR1HPDUP-01C
HSM Dissolved		PR147	PR1CSOCLYHD-01C
			PR1HDDUP-01C
LSM Particulate		PR149	PR1CSOCLYLP-01C
			PR1LPDUP-01C
	Rinse Blank		PR105LPEB
LSM Dissolved		PR150	PR1CSOCLYLD-01C
		<u> </u>	PR1LDDUP-01C
	Rinse Blank		PR105LDEB



Sample ID: P	R101CF	RB						EPA N	Aethod 1613
Project: I Date Collected: I	Γierra Solu Lower Pass 2-Nov-12 150	tions, Inc. aic River Stud	y CSO/SWO	Sample Data Matrix: Sample Size:	Aqueous 10.2 L	Laboratory Data Lab Sample: 34128-001 QC Batch No.: 4877 Date Analyzed DB-5: 28-Nov-12		ceived: tracted: alyzed DB-225:	14-Nov-12 26-Nov-12 NA
Analyte	Conc.	(pg/L)	DL a	EMPC b	Qualifiers	Labeled Standard	%R LCL-UCL ^d		Qualifiers
2,3,7,8-TCDD		0:137				<u>IS</u> 13C-2,3,7,8-TCDD	86.3	25 - 164	
1,2,3,7,8-PeCDD		ND	0.134			13C-1,2,3,7,8-PeCDD	67.3	25 - 181	
1,2,3,4,7,8-HxCDE)	ND	0.164			13C-1,2,3,4,7,8-HxCDD	69.8	32 - 141	
1,2,3,6,7,8-HxCDD)	ND	0.199			13C-1,2,3,6,7,8-HxCDD	67.9	28 - 130	
1,2,3,7,8,9-HxCDE)	ND	0.203			13C-1,2,3,7,8,9-HxCDD	66.1	32 - 141	
1,2,3,4,6,7,8-HpCI	OD	ND	0.285			13C-1,2,3,4,6,7,8-HpCDD	59.4	23 - 140	
OCDD		0.539			G	13C-OCDD	51.8	17 - 157	
2,3,7,8-TCDF		ND	0.0760		Andrew St.	13C-2,3,7,8-TCDF	92,4	24 - 169	
1,2,3,7,8-PeCDF		ND /	0.0630			13C-1,2,3,7,8-PeCDF	63.4	24 - 185	
2,3,4,7,8-PeCDF		ND.	0.0630			13C-2,3,4,7,8-PeCDF	75.0	21 - 178	
1,2,3,4,7,8-HxCDF		/ND	0.0997			13C-1,2,3,4,7,8-HxCDF	69.0	26 - 152	
1,2,3,6,7,8-HxCDF		ND	0.0956			13C-1,2,3,6,7,8-HxCDF	67.2	26 - 123	
2,3,4,6,7,8-HxCDF		ND	0.110			13C-2,3,4,6,7,8-HxCDF	69.9	28 - 136	
1,2,3,7,8,9-Hx@DF		ND	0.161			13C-1,2,3,7,8,9-HxCDF	63.7	29 - 147	
1,2,3,4,6,7,8-HpCI)F	0.327			G	13C-1,2,3,4,6,7,8-HpCDF	59.5	28 - 143	
1,2,3,4,7,8,9-HpCI)F	ND	0.193			13C-1,2,3,4,7,8,9-HpCDF	59.5	26 - 138	
OCDF	and the second second second	-1:06				13C-OCDF	53.5	17 - 157	
			-	***************************************		<u>CRS</u> 37Cl-2,3,7,8-TCDD	88.7	35 - 197	
Totals				and the second second	San	Toxic Equivalent Quotient (TEQ) I	Data e		
Total TCDD		0.137			В	TEQ (Min): 0.141			
Total PeCDD	***************************************	ND	0.134						No. of the Co.
Total HxCDD		ND	0.203			a. Sample specific estimated detection limit.			
Total HpCDD		ND	0.285			b. Estimated maximum possible concentration.			
Total TCDF		ND	0.0760			c. Method detection limit.			
Total PeCDF		ND	0.0630			d. Lower control limit - upper control limit.			
Total HxCDF		ND	0.161			e. TEQ based on (2005) World Health Organiza	ition Toxic E	quivalent Factors.	WHO)
Total HpCDF		0,327			secretoro y la del consideración de la constante de la constan				

Analyst: MAS

Approved By:

Calvin Tanaka 10-Dec-2012 12:20

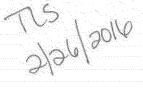
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Sample ID: PR101TL	c							EPA N	Aethod 1613
Client Data	saic River Study	CSO/SWO	Sample Data Matrix; Sample Size:	Aqueous 9.74 L	Laboratory Data Lab Sample: QC Batch No.: Date Analyzed DB-5:	34129-001 4877 28-Nov-12	Date Re Date Ex Date An		14-Nov-1 26-Nov-1 NA
Analyte Conc.	(pg/L)	DL a	EMPC b	C b Qualifiers Labeled Standard		ard	%R	LCL-UCLd	Qualifiers
2.3.7.8-TCDD	⊸-ND	0:0578			IS 13C-2,3,7,8-TC	DD	94.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.101			13C-1,2,3,7,8-Pe	:CDD	82.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.145			13C-1,2,3,4,7,8-	HxCDD	79.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.162			13C-1,2,3,6,7,8-	HxCDD	82.1	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.178			13C-1,2,3,7,8,9-	HxCDD	76.7	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.247			13C-1,2,3,4,6,7,	8-HpCDD	67.9	23 - 140	
OCDD	0.315			G	13C-OCDD		61.3	17 - 157	
2,3,7,8-TCDF	ND	0.0669			13C-2,3,7,8-TC	DF	97.0	24 - 169	
1,2,3,7,8-PeCDF	ND /	0.0562			13C-1,2,3,7,8-Pe	:CDF	73.0	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0535			13C-2,3,4,7,8-Pe	cDF	87.0	21 - 178	
1,2,3,4,7,8-HxCDF	√ND	0.0809			13C-1,2,3,4,7,8-	HxCDF	78.2	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0783			13C-1,2,3,6,7,8-	HxCDF	78.0	26 - 123	
2,3,4,6,7,8-HxCDE	ND	0.0846			13C-2,3,4,6,7,8-	HxCDF	82.0	28 - 136	
1,2,3,7,8,9-Hxe6F	ND	0.124			13C-1,2,3,7,8,9-	HxCDF	73.7	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.112			13C-1,2,3,4,6,7,	8-HpCDF	68.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.129	Salika Si	a galificana	13C-1,2,3,4,7,8,	9-HpCDF	67.1	26 - 138	
бcor — — —	ND	0:231		e gritter e sign visit visit, salda (an experimento to	13C-OCDF		61.6	17 - 157	
	***************************************				CRS 37C1-2,3,7,8-TC	DD	93.0	35 - 197	***************************************
Totals				*	Toxic Equivalent Q	aotient (TEQ) D	ata e		
Total TCDD	ND	0.0578			TEQ (Min): 0	0.0000945			
Total PeCDD	— ND ———	0.101							
Total HxCDD	ND	0.178			a. Sample specific estimate	d detection limit.			
Total HpCDD	ND	0.247—			b. Estimated maximum pos	sible concentration.			
Total TCDF	ND	0.0669			c. Method detection limit.				
Total PeCDF	-ND	0.0562			d. Lower control limit - upp	per control limit.			
Total HxCDF	ND	0.124			e. TEQ based on (2005) W	orld Health Organizat	ion Toxic E	quivalent Factors.	WHO)
Potal-HoCDF	ND	0.129		an annual and the same of					

Analyst: MAS Approved By: William J. Luksemburg 04-Dec-2012 13:29

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Sample ID: PR	101CFFB						EPA I	Aethod 1613
Project: Lo	erra Solutions, Inc. wer Passaic River Stud Nov-12	y CSO/SWO		Aqueous 9.45 L	Laboratory Data Lab Sample: 34130-001 QC Batch No.: 4877 Date Analyzed DB-5: 28-Nov-12		eceived: stracted: nalyzed DB-225:	14-Nov-12 26-Nov-12 NA
Analyte	Conc. (pg/L)	DL a	EMPC b	Qualifiers	Labeled Standard	%R	LCL-UCLd	Qualifiers
2,3,7,8-TCDD	ND ND	0:0675		and the second s	<u>IS</u> 13C-2,3,7,8-TCDD	94.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.114			13C-1,2,3,7,8-PeCDD	76.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.192			13C-1,2,3,4,7,8-HxCDD	69.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.210			13C-1,2,3,6,7,8-HxCDD	69.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.212			13C-1,2,3,7,8,9-HxCDD	66.8	32 - 141	
1,2,3,4,6,7,8-HpCDE) ND	0.288			13C-1,2,3,4,6,7,8-HpCDD	54.0	23 - 140	
OCDD	ND	9:325			13C-OCDD	45.8	17 - 157	
2,3,7,8-TCDF	ND	0.0742			13C-2,3,7,8-TCDF	96.8	24 - 169	
1,2,3,7,8-PeCDF	ND /	0.0646			13C-1,2,3,7,8-PeCDF	68.2	24 - 185	
2,3,4,7,8-PeCDF	ND/	0.0626			13C-2,3,4,7,8-PeCDF	81.8	21 - 178	
1,2,3,4,7,8-HxCDF	/ND	0.108			13C-1,2,3,4,7,8-HxCDF	67.4	26 - 152	
1,2,3,6,7,8-HxCDF	/ ND	0.109			13C-1,2,3,6,7,8-HxCDF	65.8	26 - 123	
2,3,4,6,7,8-HxCDE	ND	0.120			13C-2,3,4,6,7,8-HxCDF	71.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.170			13C-1,2,3,7,8,9-HxCDF	64.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.141			13C-1,2,3,4,6,7,8-HpCDF	54.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.172			13C-1,2,3,4,7,8,9-HpCDF	52.8	26 - 138	
ÓCDF	ND		0.240		13C-OCDF	46.4	17 - 157	
					<u>CRS</u> 37Cl-2,3,7,8-TCDD	90.3	35 - 197	
Totals					Toxic Equivalent Quotient (TEQ) I)ata e		
Total TCDD	ND	0.0675			TEQ (Min): 0			
Total PeCDD	ND.	0:114		-				
Total HxCDD	ND	0.212			a. Sample specific estimated detection limit.			
Total HpCDD	ND	0,288			b. Estimated maximum possible concentration.			
Total TCDF	ND	0.0742			c. Method detection limit.			
Total PeCDF	ND	0.0646			d. Lower control limit - upper control limit.	s 15		
Total HxCDP	ND	0.170			c. TEQ based on (2005) World Health Organiza	tion Toxic E	quivalent Factors.	(WHO)
Total HoCDF	ND	0.172					ting the second	

Analyst: MAS

Approved By:

William J. Luksemburg 04-Dec-2012 13:29

Project 34130

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Sample ID: PR101WV	VFB					EPA!	Method 161
Client Data Tierra Solut Name: Tierra Solut Project: Lower Pass: Date Collected: 13-Nov-12 Time Collected: 0900	ions, Inc. aic River Study CSO/SWC	Sample Data Matrix: Sample Size:	Aqueous 9.36 L	Lab Sample: 34131-001 QC Batch No.: 4877 Date Analyzed DB-5: 28-Nov-12	Date E	eceived: stracted: nalyzed DB-225:	14-Nov-12 26-Nov-12 NA
Analyte Conc.	(pg/L) DL	EMPC b	Qualifiers	Labeled Standard	%R	rcr-ncr _q	Qualifiers
2,3,7,8-TCDD	ND 0:061			IS 13C-2,3,7,8-TCDD	92.3	25 - 164	
1,2,3,7,8-PeCDD	ND 0.112			13C-1,2,3,7,8-PeCDD	78.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND 0.159			13C-1,2,3,4,7,8-HxCDD	77.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND 0.193			13C-1,2,3,6,7,8-HxCDD	76.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND 0.199			13C-1,2,3,7,8,9-HxCDD	75.3	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND 0.288			13C-1,2,3,4,6,7,8-HpCDD	65.3	23 - 140	
OCDD	ND 0.270			13C-OCDD	61.6	17 - 157	
2,3,7,8-TCDF	ND 0.074			13C-2,3,7,8-TCDF	96.8	24 - 169	
1,2,3,7,8-PeCDF	ND / 0.052			13C-1,2,3,7,8-PeCDF	72.4	24 - 185	
2,3,4,7,8-PeCDF	ND 0.052			13C-2,3,4,7,8-PeCDF	84.9	21 - 178	
1,2,3,4,7,8-HxCDF	∕ND 0.077			13C-1,2,3,4,7,8-HxCDF	77.2	26 - 152	
1,2,3,6,7,8-HxCDF	ND 0.078			13C-1,2,3,6,7,8-HxCDF	74.7	26 - 123	
2,3,4,6,7,8-HxCDF	ND 0.089			13C-2,3,4,6,7,8-HxCDF	78.6	28 - 136	
1,2,3,7,8,9-HxebF	ND 0.118			13C-1,2,3,7,8,9-HxCDF	73.8	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND 0.113			13C-1,2,3,4,6,7,8-HpCDF	65.5	28 - 143	
1,2,2/4,7,8,9-HpCDF	ND 0.138			13C-1,2,3,4,7,8,9-HpCDF	64.4	26 - 138	
GCDF	ⁱ -ND0:242			13C-OCDF	62.9	17 - 157	
			***************************************	CRS 37Cl-2,3,7,8-TCDD	89.6	35 - 197	
Totals				Toxic Equivalent Quotient (TEQ)	Data e		
Total TCDD	ND 0.061			TEQ (Min): 0			
Total PeCDD	ND 0:112						
Total HxCDD	ND 0.199			a. Sample specific estimated detection limit.			
Total HpCDD	ND / 0.288			b. Estimated maximum possible concentration			
Total TCDF	ND0.074			c. Method detection limit.			
Fotal PeCDF	ND 0.052			d. Lower control limit - upper control limit.			
Total HxCDP	ND 0.118			e. TEQ based on (2005) World Health Organiz	eation Toxic I	quivalent Factors.	(WHO)
Total HpCDF	-ND	immagginia maaanin mirrimis aanin		A control of the state of the s			

Analyst: MAS

Approved By:

William J. Luksemburg 04-Dec-2012 13:30

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Sample ID: PR1011	.DEB(Primary)						EPA N	lethod 161.
	olutions, Inc. Passaic River Study 12	cso/swo	Sample Data Matrix; Sample Size;	Aqueous 9.56 L	Lab Sample: QC Batch No.: Date Analyzed DB-5:	34145-003 4909 13-Dec-12	Date Re Date Ex Date An		21-Nov-1 10-Dec-1 NA
Analyte Cor	ic. (pg/L)	DL a	EMPC b	Qualifiers	Labeled Stands	ard	%R	LCL-UCLd	Qualifiers
2,3,7,8-TCDD		0.0806			1S 13C-2,3,7,8-TCI	DC DC	78.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.191			13C-1,2,3,7,8-Pe	CDD	61.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.172		/	13C-1,2,3,4,7,8-1	HxCDD	61.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.198			13C-1,2,3,6,7,8-1	HxCDD	69.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.231			13C-1,2,3,7,8,9-1	HxCDD	61.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.398		e transport de la companya de la co	13C-1,2,3,4,6,7,8	8-HpCDD	46.2	23 - 140	New York (1975) C. Leisen (1984)
OCDD	ND	0.391			13C-OCDD		41.5	17 - 157	
2,3,7,8-TCDF	ND	/0.0896	and the second section of the		13C-2,3,7,8-TCI)F	84.3	24 - 169	
1,2,3,7,8-PeCDF	ND 🦯	0.0755			13C-1,2,3,7,8-Pe	CDF	57.6	24 - 185	
2,3,4,7,8-PeCDF	ND/	0.0729			13C-2,3,4,7,8-Pe	CDF	70.6	21 - 178	
1,2,3,4,7,8-HxCDF	کھر	0.0983			13C-1,2,3,4,7,8-1	HxCDF	61.2	26 - 152	
1,2,3,6,7,8-HxCDF	/ ND	0.0950			13C-1,2,3,6,7,8-1	HxCDF	62.5	26 - 123	and Substitute of the second
2,3,4,6,7,8-HxCDF	ND	0.0985			13C-2,3,4,6,7,8-)	HxCDF	68.0	28 - 136	
1,2,3,7,8,9-HxGØF	ND	0.159			13C-1,2,3,7,8,9-	HxCDF	56.9	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.149			13C-1,2,3,4,6,7,8	8-HpCDF	51.4	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.211			13C-1,2,3,4,7,8,9	}-HpCDF	45.2	26 - 138	
œdr	ND	0.376			13C-OCDF		42.4	17 - 157	
*					CRS 37C1-2,3,7,8-TC	DD	91.8	35 - 197	
Totals				A mark of the	Toxic Equivalent Qu	otient (TEQ) D	ata e		
Total TCDD	ND	0,0806			TEQ (Min): 0				
Fotal PeCDD	ND	0.191							
Total HxCDD	ND	0.231			a. Sample specific estimates	d detection limit.			
Total HpCDD	ND	0,398-			b. Estimated maximum pos-	sible concentration.		ka tina ka ang mga ma Kabupatèn Babaharan	and the second of the second o
Total TCDF	ND	0.0896			c. Method detection limit.				
Total PeCDF	ND	0.0755			d. Lower control limit - upp	er control limit.	1. 1.		
Total HxCDP	ND	0.159			e. TEQ based on (2005) Wo	orld Health Organizat	ion Toxic E	quivalent Factors.	WHO)
Total HpCDF	ND	0.211					100		Transfer of the

Analyst: ANP Approved By: William J. Luksemburg 15-Dec-2012 07:48

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15/10/10

Sample ID:	PR101LD	EB(Second	ary)						EPA N	lethod 1613
Client Data Name: Project: Date Collected: Time Collected:	Tierra Solu Lower Pass 16-Nov-12 1236	tions, Inc. aic River Stud	y CSO/SWO	Sample Data Matrix: Sample Size:	Aqueous 8.97 L	Laboratory Data Lab Sample: QC Batch No.: Date Analyzed DB-5:	34145-001 4909 12-Dec-12	Date Re Date Ex Date An		20-Nov-12 10-Dec-12 NA
Analyte	Conc.	(pg/L)	DL ^a	EMPC b	Qualifiers	Labeled Star	ıdard	%R	LCL-UCLd	Qualifiers
2, 3,7,8-TCDD		-ND	0.137			IS 13C-2,3,7,8-T	CDD	73.4	25 - 164	
1,2,3,7,8-PeCD	DD	ND	0.221			13C-1,2,3,7,8-	PeCDD	66.1	25 - 181	
1,2,3,4,7,8-Hx0	CDD	ND	0.214			13C-1,2,3,4,7,	8-HxCDD	61.9	32 - 141	
1,2,3,6,7,8-Hx0	CDD	ND	0.243			13C-1,2,3,6,7,	8-HxCDD	64.8	28 - 130	
1,2,3,7,8,9-HxC	CDD	ND	0.276			13C-1,2,3,7,8,	9-HxCDD	59.1	32 - 141	
1,2,3,4,6,7,8-H	pCDD	ND	0.459			13C-1,2,3,4,6,	7,8-HpCDD	52.6	23 - 140	
OCDD		ND	9.370			13C-OCDD		45.6	17 - 157	
2,3,7,8-TCDF		ND	0.159			13C-2,3,7,8-T	CDF	81.9	24 - 169	
1,2,3,7,8-PeCD)F	ND /	0.132			13C-1,2,3,7,8-	PeCDF	59.6	24 - 185	
2,3,4,7,8-PeCD)F	ND/	0.118			13C-2,3,4,7,8-	PeCDF	74.8	21 - 178	
1,2,3,4,7,8-HxC	CDF	/ND	0.122			13C-1,2,3,4,7,	8-HxCDF	62.8	26 - 152	
1,2,3,6,7,8-HxQ	CDF /	ND	0.125			13C-1,2,3,6,7,	8-HxCDF	60.8	26 - 123	
2,3,4,6,7,8-Hx0	CDE/	ND	0.141			13C-2,3,4,6,7,	8-HxCDF	66.0	28 - 136	
1,2,3,7,8,9-Hy	්රිF	ND	0,203			13C-1,2,3,7,8,	9-HxCDF	58.8	29 - 147	
1,2,3,4,6,7,8-H	pCDF	ND	0.141			13C-1,2,3,4,6,	7,8-HpCDF	53.1	28 - 143	
1,2,3,4,7,8,9-H	pCDF	ND	0.206			13C-1,2,3,4,7,	8,9-HpCDF	49.1	26 - 138	
OCDF	and the same of th	ND	0:468	***************************************	phonoide and comprehensive Magazine and phonoise	13C-OCDF		47.2	17 - 157	
		and the same of th				CRS 37CI-2,3,7,8-T	CDD	100	35 - 197	
Totals						Toxic Equivalent (Quotient (TEQ) D	ata e	Bearing 18	
Total TCDD		ND	0.137			TEQ (Min):	0			
Total PcCDD		ND	0.221							
Total HxCDD		ND	0.276			a. Sample specific estima	sted detection limit.			
Total HpCDD		ND	0,459-			b. Estimated maximum p	ossible concentration.			
Total TCDF		ND	0.159			c. Method detection limit				
Total PeCDF	and the second second	- ND	0.132	and the second		d. Lower control limit - t	ipper control limit.			
Total HxCDF-		ND	0.203			e. TEQ based on (2005)	World Health Organizat	ion Toxic E	quivalent Factors.(WHO)
Total HpCDF		ND	0:206		niasyomigas nagyasan aya		1000			

Analyst: ANP

Approved By:

William J. Luksemburg 15-Dec-2012 07:48

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Sample ID: PR1	01LPEB(Primary)							EPA N	lethod 1613
Project: Low	ra Solutions, Inc. er Passaic River Study Nov-12	CSO/SWO	Sample Data Matrix: Sample Size:	Solid Sample	Laboratory Data Lab Sample: 34145-004 QC Batch No.: 4906 Date Analyzed DB-5: 7-Dec-12		Date Re Date Ex Date An		21-Nov-12 6-Dec-12 NA
Analyte	Conc. (pg/sample)	DL a	EMPC ^b	Qualifiers	Labeled Stand	ard	%R	LCL-UCLd	Qualifiers
2,3,7,8-TCDD	ND	2.05			IS 13C-2,3,7,8-TC	DD	89.4	25 - 164	
1,2,3,7,8-PeCDD	ND	2.17	San Francisco		13C-1,2,3,7,8-P	eCDD	113	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.99			13C-1,2,3,4,7,8-	HxCDD	80.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.07			13C-1,2,3,6,7,8-	HxCDD	94.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.42			13C-1,2,3,7,8,9-	HxCDD	86.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	3.85			13C-1,2,3,4,6,7,	8-HpCDD	93.8	23 - 140	
OCDD	ND	6.06			13C-OCDD		112	17 - 157	
2,3,7,8-TCDF	ND	0.950			13C-2,3,7,8-TC	DF	88.4	24 - 169	
1,2,3,7,8-PeCDF	ND /	1.62			13C-1,2,3,7,8-P	eCDF	98.5	24 - 185	
2,3,4,7,8-PeCDF	ND	1.50			13C-2,3,4,7,8-P	eCDF	116	21 - 178	
1,2,3,4,7,8-HxCDF	ND /	0.716			13C-1,2,3,4,7,8	HxCDF	82.4	26 - 152	
1,2,3,6,7,8-HxCDF	NØ	0.691			13C-1,2,3,6,7,8-	HxCDF	88.8	26 - 123	
2,3,4,6,7,8-HxCDF	/ND	0.783			13C-2,3,4,6,7,8	HxCDF	88.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	1.12			13C-1,2,3,7,8,9	-HxCDF	84.0	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	1.19			13C-1,2,3,4,6,7,	8-HpCDF	87.9	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	1.60			13C-1,2,3,4,7,8,	9-HpCDF	97.1	26 - 138	
ócdr −−−−	~ND-				13C-OCDF		110	17 - 157	
					CRS 37CI-2,3,7,8-TC	DD	86.2	35 - 197	
Totals					Toxic Equivalent Q	uotient (TEQ) D	ata e		and the second
Total TCDD	ND	2.05			TEQ (Min):)			
Fotal/PeCDD	ND	2.17						a 15 August - Salah 1 Arabasan ang kalabasan	
Total HxCDD	ND 1	2.16	-		a. Sample specific estimate	ed detection limit.			
Total HpCDD	ND	3.85			b. Estimated maximum po-	ssible concentration.			
Total TCDF	ND 1	0.950			c. Method detection limit.				
Total PeCDF	_ND	1.55			d. Lower control limit - up	per control limit.			
Total HxCDF	ND	0.813			e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors (WHO)			WHO)	
Total HpCDF	ND	1.35			The results are reported in	dry weight. The samp	le size is rej	orted in wet weigh	t.

Analyst: DMS Approved By: William J. Luksemburg 12-Dec-2012 11:48

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Sample ID: PR	101LP	EB(Secondar	y)					EPA N	Aethod 1613
Project: Lov	wer Pass Nov-12	tions, Inc. aic River Study	CSO/SWO	Sample Data Matrix: Sample Size:	Solid Sample	Laboratory Data Lab Sample: 34145-002 QC Batch No.: 4907 Date Analyzed DB-5: 8-Dec-12	Date Received: Date Extracted: Date Analyzed DB-225:		20-Nov-12 6-Dec-12 NA
Analyte	Conc.	(pg/sample)	DL a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	NĐ		-2.51			<u>IS</u> 13C-2,3,7,8-TCDD	85.7	25 - 164	
1,2,3,7,8-PeCDD	ND		2.57			13C-1,2,3,7,8-PeCDD	92.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND		3.03		/	13C-1,2,3,4,7,8-HxCDD	78.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND		3.07			13C-1,2,3,6,7,8-HxCDD	92.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND		3.84			13C-1,2,3,7,8,9-HxCDD	86.7	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND		5.27			13C-1,2,3,4,6,7,8-HpCDD	88.9	23 - 140	
OCDD	ND		9.25			13C-OCDD	105	17 - 157	
2,3,7,8-TCDF	ND		1.39			13C-2,3,7,8-TCDF	83.7	24 - 169	
1,2,3,7,8-PeCDF	ND		1.83			13C-1,2,3,7,8-PeCDF	90.9	24 - 185	
2,3,4,7,8-PeCDF	ND		1.75			13C-2,3,4,7,8-PeCDF	97.6	21 - 178	
1,2,3,4,7,8-HxCDF	ND	/	1.01			13C-1,2,3,4,7,8-HxCDF	77.3	26 - 152	
1,2,3,6,7,8-HxCDF	ND		0.941	Santanana (C. Santana)		13C-1,2,3,6,7,8-HxCDF	89.0	26 - 123	
2,3,4,6,7,8-HxCDF			1.08			13C-2,3,4,6,7,8-HxCDF	84.9	28 - 136	
1,2,3,7,8,9-HxCDF	ND		1.47			13C-1,2,3,7,8,9-HxCDF	80.5	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND		1.61			13C-1,2,3,4,6,7,8-HpCDF	88.1	28 - 143	
1,2,3;4,7,8,9-HpCDF	ND		2.35) ,			13C-1,2,3,4,7,8,9-HpCDF	94.1	26 - 138	
б ерг	ND		3.78		description of the second	13C-OCDF	103	17 - 157	
						CRS 37C1-2,3,7,8-TCDD	79.5	35 - 197	
Totals						Toxic Equivalent Quotient (TEQ)	Data e		
Total TCDD	ND		2,50			TEQ (Min): 0			
Total-PeCDD	—ND	****	2.57						
Total HxCDD	ND		3.31			a. Sample specific estimated detection limit.			
Total HpCDD	ND		5.26			b. Estimated maximum possible concentration.			
Total TCDF	ND		1.38			c. Method detection limit.			
Total PeCDF	ND		1.79	Maria Salah		d. Lower control limit - upper control limit.			
Total HxCDE	ND		1.11			e. TEQ based on (2005) World Health Organiz	ation Toxic I	Equivalent Factors.(WHO)
Total Fin CDF	ND		1.90			The results are reported in dry weight. The same	ple size is re	ported in wet weigl	nt.

Analyst: DMS

Approved By: William J. Luksemburg 12-Dec-2012 11:48

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Sample ID: PRICSOCLYWW-01A EPA Method 1613B Client Data Sample Data Laboratory Data 1300420-01 Date Received: 12-Jun-2013 9:27 Name: Tierra Solutions, Inc. Matrix: Aqueous Lab Sample: Project: Lower Passiac River Study CSO/SWO Sample Size: 7.23 L QC Batch: B3G0015 Date Extracted: 27-Jun-2013 7:41 08-Jul-13 21:12 Column: ZB-5MS Analyst: MAS Date Collected: 10-Jun-2013 20:55 Date Analyzed: Analyte Conc. (pg/L) DL EMPC Qualifiers Labeled Standard %R LCL-UCL Qualifiers 2,3,7,8-TCDD ND 0.386 13C-2,3,7,8-TCDD 84.3 25 - 164 ND 0.510 108 25 - 181 1.2.3.7.8-PeCDD 13C-1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 0.859 G 13C-1,2,3,4,7,8-HxCDD 52.2 32 - 141 1,2,3,6,7,8-HxCDD 2.37 G 53.6 13C-1,2,3,6,7,8-HxCDD 28 - 1301,2,3,7,8,9-HxCDD 1.56 G 13C-1,2,3,7,8,9-HxCDD 53.1 32 - 141 62.1 1,2,3,4,6,7,8-HpCDD 79.6 13C-1,2,3,4,6,7,8-HpCDD 23 - 140OCDD 715 13C-OCDD 75.5 17 - 157 ND 0.173 2,3,7,8-TCDF 79.7 24 - 16913C-2,3,7,8-TCDF 1,2,3,7,8-PeCDF 0.228 G 13C-1,2,3,7,8-PeCDF 24 - 185 86.9 ND 0.302 2,3,4,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 90.6 21 - 1781.68 G 1,2,3,4,7,8-HxCDF 13C-1,2,3,4,7,8-HxCDF 63.8 26 - 152 ND 1.32 1,2,3,6,7,8-HxCDF 13C-1,2,3,6,7,8-HxCDF 64.6 26 - 123 1.69 2,3,4,6,7,8-HxCDF G 13C-2,3,4,6,7,8-HxCDF 65.9 28 - 136 1,2,3,7,8,9-HxCDE ND 0.356 13C-1,2,3,7,8,9-HxCDF 66.1 29 - 147 18.0 1,2,3,4,6,7,8-HpCDF 13C-1,2,3,4,6,7,8-HpCDF 69.9 28 - 143 G 1,2,3,4,7,8,9-HpCDF 1.56 13C-1,2,3,4,7,8,9-HpCDF 73.6 26 - 138 **OCDF** 36.6 13C-OCDF 76.6 17 - 157 CRS 37CI-2,3,7,8-TCDD 116 35 - 197Toxic Equivalent Quotient (TEQ) Data TEQMinWHO2005Dioxin 1.86 TOTALS Total TCDD 0.240 0.923 596 6.20 Total PeCDD Total HxCDD 17.2 18.5 Total HpCDD 128 2.95 Total TCDF 3.79 Total PeCDF 7.39 7.82 24.7 26.4 Total HxCDE TOTAL HPCDF 39,3

2/36/2014

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected

Project 1300420

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Sample ID: PR1W	WDUP-01A							EPA Me	thod 16131
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO n-2013 0:00	Matr	e Data ix: Aqueous ole Size: 9.50 L		Lab Sample: 1300420-02 Date Red QC Batch: B3F0082 Date Ext Date Analyzed: 03-Jul-13 17:50 Column: Zl			cted: 27-Jun-2013 7:41	
Analyte C	one. (pg/L)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-1CDD	ND	0.0816		7	IS	13C-2,3,7,8-TCDD	61.9	25 - 164	
1,2,3,7,8-PeCDD	ND		0.211			13C-1,2,3,7,8-PeCDD	55.5	25 - 181	
1,2,3,4,7,8-HxCDD	0.514			/ G		13C-1,2,3,4,7,8-HxCDD	63.5	32 - 141	
1,2,3,6,7,8-HxCDD	1.41			G		13C-1,2,3,6,7,8-HxCDD	65.2	28 - 130	
1,2,3,7,8,9-HxCDD	1.18			G		13C-1,2,3,7,8,9-HxCDD	62.3	32 - 141	
1,2,3,4,6,7,8-HpCDD	41.3			and the second s		13C-1,2,3,4,6,7,8-HpCDD	48.5	23 - 140	
OCDD	429					13C-OCDD	39.7	17 - 157	
2,3,7,8-TCDF	ND		0.210			13C-2,3,7,8-TCDF	45.8	24 - 169	
1,2,3,7,8-PeCDF	ND /		0.188			13C-1,2,3,7,8-PeCDF	58.5	24 - 185	
2,3,4,7,8-PeCDF	0.248			G		13C-2,3,4,7,8-PeCDF	59.7	21 - 178	
1,2,3,4,7,8-HxCDF	1.33			G		13C-1,2,3,4,7,8-HxCDF	62.5	26 - 152	
1,2,3,6,7,8-HxCDF	1.29		at almethar starts	G		13C-1,2,3,6,7,8-HxCDF	67.8	26 - 123	
2,3,4,6,7,8-HxCDF	_1:39			G		13C-2,3,4,6,7,8-HxCDF	66.0	28 - 136	
1,2,3,7,8,9-HxCDE	ND	0.309		and the second of the second		13C-1,2,3,7,8,9-HxCDF	58.4	29 - 147	
1,2,3,4,6,7,8-HpCDF	20.5					13C-1,2,3,4,6,7,8-HpCDF	51.7	28 - 143	
1.2.3.4.7.8.9-HpCDF	1.56			G		13C-1,2,3,4,7,8,9-HpCDF	47.6	26 - 138	
SCDF	43.3					13C-OCDF	39.2	17 - 157	
San		errana presentante de la companya d	and the second second	and the second second	CRS	37CI-2,3,7,8-TCDD	71.0	35 - 197	
						Toxic Equivalent Quotient (TI	EQ) Data		*
						TEQMinWHO2005Dioxin	1.56		
TOTALS									
Total TCDD	0.357	and the Sales							
Fotal PeCDD									
Total HxCDD	12.1		The second secon		L			and the second s	Albandara Sar
Fotal HpCDD	80.9	The second secon							
Fotal TCDF	2.85			er i Santa de Participa de Santa de S Santa de Santa de Sa			Albert Broke Broke William		er er i til som filler Svenskig i til egit ser
Total PeCDF	9.55				Part of				
Total HxCDF	24.7					elemente de la compartación de la			
FotsiTHpCDF	mana A de la companya di mate				167.17	CL- Lower control limit - upper control lim		101 4 K 1 K 1 K 1 K 1 K 1 K 1 K 1 K 1 K 1	
The second secon	DL - Sample specife estimated detection limit EMPC - Estimated maximum possible concentration					e TEQ is calculated using zero for the conc			

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Sample ID: PR1CS	OCLYHP-01A					EPA Me	thod 1613		
Project: Lowe	n Solutions, Inc. r Passiac River Study CSO/SWO n-2013 20:55	Sample Data Matrix: Solid Sample Size: 17.3 g % Solids: 29.5		Laboratory Data Lab Sample: 1300419-01 Date Received: 13-Jun-2013 9:42 QC Batch: B3F0052 Date Extracted: 19-Jun-2013 14:38 Date Analyzed: 25-Jun-13 22:06 Column: ZB-5MS Analyst: MAS 28-Jun-13 16:52 Column: DB-225 Analyst: MAS					
Analyte Co	one. (pg/g)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifier		
2,3,7,8-TCDD	236	The state of the s		IS 13C-2,3,7,8-TCDD	90.8	25 - 164			
1,2,3,7,8-PeCDD	4.34			13C-1,2,3,7,8-PeCDD	96.8	25 - 181			
1,2,3,4,7,8-HxCDD	5.96			13C-1,2,3,4,7,8-HxCDD	84.2	32 - 141			
1,2,3,6,7,8-HxCDD	21.4			13C-1,2,3,6,7,8-HxCDD	81.1	28 - 130			
1,2,3,7,8,9-HxCDD	15.3			13C-1,2,3,7,8,9-HxCDD	83.2	32 - 141			
1,2,3,4,6,7,8-HpCDD	672			13C-1,2,3,4,6,7,8-HpCDD	95.4	23 - 140			
OCDD	9480		D	13C-OCDD	112	17 - 157	D		
2,3,7,8-TCDF	4.76			13C-2,3,7,8-TCDF	92.6	24 - 169			
1,2,3,7,8-PeCDF	3.76			13C-1,2,3,7,8-PeCDF	105	24 - 185			
2,3,4,7,8-PeCDF	4.76			13C-2,3,4,7,8-PeCDF	101	21 - 178			
,2,3,4,7,8-HxCDF	20.9			13C-1,2,3,4,7,8-HxCDF	84.4	26 - 152			
1,2,3,6,7,8-HxCDF	15.4			13C-1,2,3,6,7,8-HxCDF	77.0	26 - 123			
2,3,4,6,7,8-HxCDF	_19.0			13C-2,3,4,6,7,8-HxCDF	80.0	28 - 136			
1,2,3,7,8,9-HxCDF	1.53		G	13C-1,2,3,7,8,9-HxCDF	83.2	29 - 147			
1,2,3,4,6,7,8#ffpCDF	245			13C-1,2,3,4,6,7,8-HpCDF	82.9	28 - 143			
1,2,3,4,7,8,9-HpCDF	16.4			13C-1,2,3,4,7,8,9-HpCDF	93.7	26 - 138			
бер г	486			13C-OCDF	98.3	17 - 157			
				CRS 37Cl-2,3,7,8-TCDD	96.8	35 - 197			
				Toxic Equivalent Quotient (1	EQ) Data				
				TEQMinWHO2005Dioxin	31.0				
TOTALS						***************************************			
Total TCDD	14.5	18,0							
Potal PeCDD									
Fotal HxCDD	172								
Fotal HpCDD	1430								
Total TCDF	78.4	80.8							
Total PeCDF	147								
Total HxCDF	314								
FomFlipCDF	-529								
DL - Sample specife est EMPC - Estimated max	imated detection limit imum possible concentration			LCL-UCL- Lower control limit - upper control li The results are reported in dry weight. TEQ is calculated using zero for the concentration	The sample size is repor		The		

Project 1300419

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Sample ID: PR1HP	DUP-01A						EPA Me	thod 1613I	
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO n-2013 0:00	Sample Data Matrix: Solid Sample Size: 16.9 g % Solids: 30.1	Matrix: Solid Sample Size: 16.9 g				eted: 19-Jun-2013 14:38 5MS Analyst: MAS		
Analyte Co	one. (pg/g)	DL EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers	
2,3,7,8-ТСD D	9.15			IS	13C-2,3,7,8-TCDD	97.2	25 - 164		
1,2,3,7,8-PeCDD	4.78				13C-1,2,3,7,8-PeCDD	104	25 - 181		
1,2,3,4,7,8-HxCDD	5.72				13C-1,2,3,4,7,8-HxCDD	79.5	32 - 141		
1,2,3,6,7,8-HxCDD	21.2				13C-1,2,3,6,7,8-HxCDD	80.5	28 - 130		
1,2,3,7,8,9-HxCDD	15.3				13C-1,2,3,7,8,9-HxCDD	81.3	32 - 141		
1,2,3,4,6,7,8-HpCDD	621				13C-1,2,3,4,6,7,8-HpCDD	93.6	23 - 140		
OCDD	8960		D		13C-OCDD	102	17 - 157	D	
2,3,7,8-TCDF	4.90		the Seng College		13C-2,3,7,8-TCDF	97.6	24 - 169		
1,2,3,7,8-PeCDF	4.11			1	13C-1,2,3,7,8-PeCDF	106	24 - 185		
2,3,4,7,8-PeCDF	5.26				13C-2,3,4,7,8-PeCDF	107	21 - 178		
1,2,3,4,7,8-HxCDF	31.5				13C-1,2,3,4,7,8-HxCDF	82.7	26 - 152		
1,2,3,6,7,8-HxCDF	18.2				13C-1,2,3,6,7,8-HxCDF	75.3	26 - 123		
2,3,4,6,7,8-HxCDF	209				13C-2,3,4,6,7,8-HxCDF	77.8	28 - 136		
1.2,3,7,8,9-HxCDE	1.89		G		13C-1,2,3,7,8,9-HxCDF	80.8	29 - 147		
1.2.3.4.6.7.8-HpCDF	271				13C-1,2,3,4,6,7,8-HpCDF	81.7	28 - 143		
1,2,3,4,7,8,9-HpCDF	18.7				13C-1,2,3,4,7,8,9-HpCDF	92.4	26 - 138		
g (D)	549				13C-OCDF	90.7	17 - 157		
	entering property of presidence in the second property of the	the first of the second second to the second se		CRS	37CI-2,3,7,8-TCDD	100	35 - 197		
					Toxic Equivalent Quotient (TF	Q) Data			
					TEQMinWHO2005Dioxin	39.6			
TOTALS									
Total TCDD	25.5	25.7							
Total PcCDD	57.2								
Total HxCDD	172								
Total HpCDD	1330	The second secon		1					
Total TCDF	87.2	89.4		1					
Total PeCDF	163	164							
Total HxCDF	338								
Total ΠρCDE DL - Sample specife est	562			4					

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight. The sample size is reported in wet weight. Min-The

TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300419

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OCLYHD-01A							EPA Me	thod 1613 E		
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiae River Study CSO/SWO Date Collected: 10-Jun-2013 20:55		Sample Data Matrix: Aqueous Sample Size: 9.91 L			QC Batch: B3F0088 Date Extracted: 28-Jun					
me. (pg/L)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers		
ND		0.0670		IS	13C-2,3,7,8-TCDD	86.9	25 - 164			
0.182			<u>_</u> 6	1.5	13C-1,2,3,7,8-PeCDD	61.4	25 - 181			
0.347			/ G		13C-1,2,3,4,7,8-HxCDD	67.6	32 - 141			
1.19			G		13C-1,2,3,6,7,8-HxCDD	68.8	28 - 130			
0.894			G		13C-1,2,3,7,8,9-HxCDD	65.5	32 - 141			
32.6					13C-1,2,3,4,6,7,8-HpCDD	51.7	23 - 140			
365					13C-OCDD	42.4	17 - 157			
0.148			G		13C-2,3,7,8-TCDF	77.7	24 - 169	A STATE OF THE STATE OF		
ND		0.101			13C-1,2,3,7,8-PeCDF	66.6	24 - 185			
0.266			G		13C-2,3,4,7,8-PeCDF	67.9	21 - 178			
0.982			G		13C-1,2,3,4,7,8-HxCDF	67.1	26 - 152			
0.962			G		13C-1,2,3,6,7,8-HxCDF	73.9	26 - 123			
_1.04			G		13C-2,3,4,6,7,8-HxCDF	69.0	28 - 136			
ND	0.365				13C-1,2,3,7,8,9-HxCDF	62.5	29 - 147			
16.6					13C-1,2,3,4,6,7,8-HpCDF	54.8	28 - 143			
ND		1.29	and the second second		13C-1,2,3,4,7,8,9-HpCDF	48.9	26 - 138			
					13C-OCDF	41.9	17 - 157			
	of Santana		province and province in the first still state of	CRS	37CI-2,3,7,8-TCDD	92.4	35 - 197			
					Toxic Equivalent Quotient (TI	Q) Data				
					TEQMinWHO2005Dioxin	1.43				
	***************************************	***************************************	***************************************							
ND		0.0670								
8.69		8.70								
62.4										
0.992		1.11			en ann an airean go gan an a					
5.69		5.79								
18.6										
		36.0			그리즘 어린 이름 중하다 사람들이 보는데					
	r Passiac River Study CSO/SWO n-2013 20:55 onc. (pg/L) ND 0.182 0.347 1.19 0.894 32.6 365 0.148 ND 0.266 0.982 0.962 1.04 ND 16.6 ND 37.0 ND 2.33 8.69 62.4 0.992 5.69 18.6	Samp Matr r Passiae River Study CSO/SWO n-2013 20:55 DE ND 0.182 0.347 1.19 0.894 32.6 365 0.148 ND 0.266 0.982 0.982 0.982 0.9862 1.04 ND 0.365 16.6 ND 37.0 ND 0.365 18.6	Sample Data Matrix: Aqueous Sample Size: 9.91 L Matrix: Aqueous Sample Size: 9.91 L	Sample Data Matrix: Aqueous Sample Size: 9.91 L	Sample Data La Matrix: Aqueous La Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L QC Dassiac River Study CSO/SWO Sample Size: 9.91 L GC Dassiac River Study CSO/SWO Sample Size: 9.91 L Dassiac River Study CSO/SWO Samp	Sample Data Matrix: Aqueous Lab Sample: 1300424-01 QC Batch: B3F0088 Date Analyzed : 0.3-Jul-13 19:30 Date Analyzed : 0.3-Jul-13 19	Sample Data Matrix: Aqueous Laboratory Data Lab Sample: 1300424-01 Date Received: QC Batch: B3F0088 Date Extracted: Date Analyzed: O3-Jul-13 19:30 Column: ZB-5MS	Sample Data Matrix: Aqueous Sample Size: 9.91 L Laboratory Data Lab Sample: 13.00424-01 Date Received: 13Jun-2013 20:55 Date Analyzed: B3F0088 Date Extracted: 28Jun-2013 20:55 Date Analyzed: 0.3Jul-13 19:30 Column: ZB-5MS Analysts: AND Date Analyzed: Date Analyzed: Date Analyzed: 28Jun-2013 20:55 Date Analyzed: Date Analyzed: 28Jun-2013 20:55 Date Analyzed: Date Analyzed: 28Jun-2013 20:55 Date Analyzed: 28Jun-2013 20:55 Date Analyzed: Date Analyzed: 28Jun-2013 20:55 Date Analyzed		

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

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Sample ID: PR1HD	DUP-01A	The state of the s					EPA Me	thod 1613B
Project: Lowe	i Solutions, Inc. r Passiac River Study CSC n-2013 0:00	Sample Data Matrix: Aquee D/SWO Sample Size: 9.88 I		Lab QC	oratory Data Sample: 1300424-02 Batch: B3F0088 e Analyzed: 03-Jul-13 18:4	Date Recei Date Extra 0 Column: ZB-		9:42 7:22
Analyte Co	one, (pg/L)	DL EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
3,3,7,8-TCDD	ND -	0:0740		IS	13C-2,3,7,8-TCDD	63.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.185			13C-1,2,3,7,8-PeCDD	50.5	25 - 181	
1,2,3,4,7,8-HxCDD	0.411		/ G		13C-1,2,3,4,7,8-HxCDD	57.9	32 - 141	
1,2,3,6,7,8-HxCDD	4.63				13C-1,2,3,6,7,8-HxCDD	59.4	28 - 130	
1,2,3,7,8,9-HxCDD	2.49		G		13C-1,2,3,7,8,9-HxCDD	56.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	116				13C-1,2,3,4,6,7,8-HpCDD	48.4	23 - 140	
OCDD	720				13C-OCDD	40.4	17 - 157	
2,3,7,8-TCDF	0.169		G		13C-2,3,7,8-TCDF	57.9	24 - 169	
1,2,3,7,8-PeCDF	0.139		G		13C-1,2,3,7,8-PeCDF	53.9	24 - 185	
2,3,4,7,8-PeCDF	0.248		Ğ		13C-2,3,4,7,8-PeCDF	56.2	21 - 178	
1,2,3,4,7,8-HxCDF	0.912		G		13C-1,2,3,4,7,8-HxCDF	56.5	26 - 152	
1,2,3,6,7,8-HxCDF	1.04		G		13C-1,2,3,6,7,8-HxCDF	63.7	26 - 123	
2,3,4,6,7,8-HxCDF	0:922		G		13C-2,3,4,6,7,8-HxCDF	60.3	28 - 136	
1,2,3,7,8,9-HxCDE	ND	0.302			13C-1,2,3,7,8,9-HxCDF	53.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	17.6				13C-1,2,3,4,6,7,8-HpCDF	47.3	28 - 143	
1,2,3.4,7,8,9-HpCDF	1.45		` G		13C-1,2,3,4,7,8,9-HpCDF	44.2	26 - 138	
ØCDF	39.8				13C-OCDF	38.7	17 - 157	
	and the first of the section of the section of			CRS	37CI-2,3,7,8-TCDD	90.9	35 - 197	
					Toxic Equivalent Quotient (T	EQ) Data		
					TEQMinWHO2005Dioxin	2.71		
TOTALS								
Total TCDD	2.05							
Total-PeCDD								
Total HxCDD	25.1							
Total HpCDD	193							
Total TCDF	0.668	0.770						
Total PcCDF	7.29	7.50						
Total HxCDF	18.7	18.9						
Fotal HpCDF	imated detection limit							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Project 1300424

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Sample ID: PR1CSC	OCLYLP-01A					The second of	EPA Me	thod 1613B
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO -2013 10:20	Sample Data Matrix: Filter Sample Size: 0.371 g			oratory Data Sample: 1300432-01 Batch: B3G0017 e Analyzed: 09-Jul-13 18:3	Date Received: 19-Jun-20 Date Extracted: 03-Jul-20 0 Column: ZB-5MS Analyst: FE		
Analyte Cor	nc. (pg/Sample w	DL EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8, TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 0CDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8,9-HpCDF	ND 6.50 12.0 43.9 25.4 1940 15700 5.49 4.09 14.2 23.4 24.4 28.2 4.84 396 28.1	1.20	G G G		13C-2,3,7,8-TCDD 13C-1,2,3,4,7,8-PeCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,7,8,9-HxCDD 13C-1,2,3,7,8,9-HxCDD 13C-0CDD 13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-1,2,3,4,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HxCDF 13C-1,2,3,4,6,7,8-HyCDF 13C-1,2,3,4,6,7,8-HyCDF 13C-1,2,3,4,6,7,8-HyCDF 13C-1,2,3,4,6,7,8-HyCDF 13C-1,2,3,4,7,8,9-HyCDF 13C-1,2,3,4,7,8,9-HyCDF	98.6 98.2 88.6 87.2 87.3 90.3 87.4 93.8 99.3 97.8 97.3 98.4 96.7 97.5 97.1 92.2 86.2	25 - 164 25 - 181 32 - 141 28 - 130 32 - 141 23 - 140 17 - 157 24 - 169 24 - 185 21 - 178 26 - 152 26 - 123 28 - 136 29 - 147 28 - 143 26 - 138 17 - 157	
				CRS	37Cl-2,3,7,8-TCDD	103	35 - 197	Control of the
TOTALS								
Total TCDD Total PcCDD Total HxCDD Total HpCDD Total TCDF Total PcCDF Total PcCDF	18.6 240 354 3860 71.5 177 496	92.9 185 499						
Total HpCDF	e20 nated detection limit				L- Lower control limit - upper control lim			

15 0/16

EPA Method 1613B Sample ID: PR1LPDUP-01A Client Data Sample Data **Laboratory Data** Name: Tierra Solutions, Inc. Filter Matrix: Lab Sample: 1300432-02 Date Received: 19-Jun-2013 9:10 Project: Lower Passiac River Study CSO/SWO Sample Size: 0.612 g OC Batch: B3G0017 Date Extracted: 03-Jul-2013 10:33 Date Collected: 14-Jun-2013 17:25 Date Analyzed: 09-Jul-13 21:01 Column: ZB-5MS Analyst: FEB Analyte Conc. (pg/Sample w DL **EMPC** Qualifiers Labeled Standard %R LCL-UCL Qualifiers 2.3.7.8-TCDD-1.74 G100 25 - 164 13C-2,3,7,8-TCDD 1,2,3,7,8-PeCDD 4.37 25 - 181 13C-1,2,3,7,8-PeCDD 101 G 6.63 1,2,3,4,7,8-HxCDD 13C-1,2,3,4,7,8-HxCDD 94.9 32 - 141 1,2,3,6,7,8-HxCDD 22.8 G 13C-1,2,3,6,7,8-HxCDD 93.1 28 - 130 G 1,2,3,7,8,9-HxCDD 15.5 13C-1,2,3,7,8,9-HxCDD 93.3 32 - 1411,2,3,4,6,7,8-HpCDD 845 13C-1,2,3,4,6,7,8-HpCDD 92.1 23 - 140OCDD 8560 86.3 13C-OCDD 17 - 157 2,3,7,8-TCDF 2.83 G 13C-2,3,7,8-TCDF 95.7 24 - 169 1,2,3,7,8-PeCDF 3.14 G 24 - 185 13C-1,2,3,7,8-PeCDF 100 8.37 G 2.3,4,7,8-PeCDF 13C-2,3,4,7,8-PeCDF 100 21 - 17813.3 G 1,2,3,4,7,8-HxCDF 26 - 15213C-1,2,3,4,7,8-HxCDF 101 14.0 G 1,2,3,6,7,8-HxCDF 13C-1,2,3,6,7,8-HxCDF 103 26 - 12315.8 2,3,4,6,7,8-HxCDF G 13C-2,3,4,6,7,8-HxCDF 100 28 - 136 1,2,3,7,8,9-HxCDF 4.55 G 13C-1,2,3,7,8,9-HxCDF 99.3 29 - 147 1,2,3,4,6,7,8-HpCDF 215 13C-1,2,3,4,6,7,8-HpCDF 97.5 28 - 143 1,2,3,4,7,8,9-HpCDF 16.2 G 13C-1,2,3,4,7,8,9-HpCDF 91.8 26 - 138 OCDF 432 13C-OCDF 85.9 17 - 157 CRS 37C1-2,3,7,8-TCDD 103 35 - 197 TOTALS HIS 972 ROSH Total TCDD 10.5 86.3 87.9 Total-PeCDD 172 Total HxCDD 1730 Total HpCDD Total TCDF 51.0 54.5 Total PeCDF 99.6 270 Total HxCDF - Total HpCDF 445

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

75 alable

LCL-UCL- Lower control limit - upper control limit

Project: Lower	Solutions, Inc. Passiac River Study CSO/SV 1-2013 10:20	Sample Matri /O Samp			Lat QC	boratory Data 5 Sample: 1300427-01 Batch: B3G0011 te Analyzed: 04-Jul-13 17:53	Date Receiv Date Extract Column: ZB-51		A STATE OF THE STA
Analyte Co	nc. (pg/L)	DL	EMPC	Qualifiers	1	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	-ND + T	0:0431			IS	13C-2,3,7,8-TCDD	66.2	25 - 164	
1,2,3,7,8-PeCDD	ND ;	0.0938				13C-1,2,3,7,8-PeCDD	58.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.110				13C-1,2,3,4,7,8-HxCDD	47.0	32 - 141	
1,2,3,6,7,8-HxCDD	0.304			G		13C-1,2,3,6,7,8-HxCDD	51.0	28 - 130	
1,2,3,7,8,9-HxCDD	0.254			G	1	13C-1,2,3,7,8,9-HxCDD	46.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	6.33					13C-1,2,3,4,6,7,8-HpCDD	40.3	23 - 140	
OCDD	41.7					13C-OCDD	35.0	17 - 157	
2,3,7,8-TCDF	ND	0.0665			Constraint.	13C-2,3,7,8-TCDF	67.5	24 - 169	
1,2,3,7,8-PeCDF	ND		0.0380			13C-1,2,3,7,8-PeCDF	58.8	24 - 185	
2,3,4,7,8-PeCDF	0.0854			G	1	13C-2,3,4,7,8-PeCDF	61.3	21 - 178	
1,2,3,4,7,8-HxCDF	0.314			G	in said	13C-1,2,3,4,7,8-HxCDF	47.0	26 - 152	
1,2,3,6,7,8-HxCDF	0.361	Contraction and a	of marriagation and	G	T	13C-1,2,3,6,7,8-HxCDF	49.1	26 - 123	
2,3,4,6,7,8-HxCDF	J0:277			G		13C-2,3,4,6,7,8-HxCDF	48.6	28 - 136	
1,2,3,7,8,9-HxCDE	ND	0.203			1	13C-1,2,3,7,8,9-HxCDF	46.3	29 - 147	
1,2,3,4,6,7,8-H6CDF	3.40					13C-1,2,3,4,6,7,8-HpCDF	42.8	28 - 143	
1.2.3.4.7.8.9-HpCDF	ND		0.370		1	13C-1,2,3,4,7,8,9-HpCDF	39.6	26 - 138	
o€br	6:05					13C-OCDF	34.8	17 - 157	
	and the growth of the state of the state of the	early as manifest have market		and a series of the series of	CRS	37CI-2,3,7,8-TCDD	95.7	35 - 197	
						Toxic Equivalent Quotient (TE	Q) Data		
						TEQMinWHO2005Dioxin	0.288		
TOTALS									
Total TCDD	ND	0.0431							
Total PeCDD			0.276						
Total HxCDD	2.17		2.31						
Total HpCDD	11.6								
Total TCDF	0.102				1		ris (1) and (1		
Total PeCDF	1.19		1.28		155				
Total HxCDE	4.52		i (1965) ayar 1966 Jeografia	and the second of the second o					
Total HoCDF	6,70	one and the second		and the state of t					

3/30/10

Project 1300427

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Sample ID: PR	1LDDUP-01A							EPA Me	thod 1613B
Project: Date Collected:	Tierra Solutions, Inc. Lower Passiac River Study CSO/SWO 14-Jun-2013 17:25	Sample I Matrix: Sample	Aqueous Size: 9.71 L		Lat QC	04-Jul-13 17:0:	Date Received: Date Extracted: 0 Column: ZB-5MS 3 Column: ZB-5MS	02-Jul-2013 Analyst: ANP Analyst: ANP	7:44
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.0521		~	IS	13C-2,3,7,8-TCDD	70.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0875				13C-1,2,3,7,8-PeCDD	60.4	25 - 181	
1,2,3,4,7,8-HxCDE		0.138				13C-1,2,3,4,7,8-HxCDD	50.1	32 - 141	
1,2,3,6,7,8-HxCDE				G		13C-1,2,3,6,7,8-HxCDD	54.6	28 - 130	
1,2,3,7,8,9-HxCDE		0.168			1000	13C-1,2,3,7,8,9-HxCDD	51.4	32 - 141	
1,2,3,4,6,7,8-HpCE						13C-1,2,3,4,6,7,8-HpCDD	44.2	23 - 140	
OCDD	44.0					13C-OCDD	39.4	17 - 157	
2,3,7,8-TCDF	ND	0.0679				13C-2,3,7,8-TCDF	70.9	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0605				13C-1,2,3,7,8-PeCDF	62.9	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0558				13C-2,3,4,7,8-PeCDF	65.2	21 - 178	
1,2,3,4,7,8-HxCDF	0.364			G		13C-1,2,3,4,7,8-HxCDF	50.0	26 - 152	
1,2,3,6,7,8-HxCDF	0.373			G		13C-1,2,3,6,7,8-HxCDF	52.4	26 - 123	
2,3,4,6,7,8-HxCDF	.0321			G		13C-2,3,4,6,7,8-HxCDF	51.4	28 - 136	
1,2,3,7,8,9-HxCDE	ND	0.122				13C-1,2,3,7,8,9-HxCDF	50.7	29 - 147	186
1,2,3,4,6,7,8-HpCE	OF 3.20					13C-1,2,3,4,6,7,8-HpCDF	46.2	28 - 143	
1,2,3,4,7,8,9-HpCE	OF 0.363			G	1 2 2 2 2 2	13C-1,2,3,4,7,8,9-HpCDF	44.5	26 - 138	
OCDF	5.90					13C-OCDF	38.9	17 - 157	
			The state of the s		CRS	37Cl-2,3,7,8-TCDD	99.2	35 - 197	
						Toxic Equivalent Quotient (TE	Q) Data		
						TEQMinWHO2005Dioxin	0.252		
TOTALS									******************
Total TCDD	ND	0.0521	15 2/26	116					
Total PcCDD	· · · · · · · · · · · · · · · · · · ·		-0.186	- Charles of the Control of the Cont					
Total HxCDD	2.00								
Total HpCDD	11.9								
Total TCDF	ND			[38.88]					
Total PeCDF	1.35								
Total HxCDF	4.64								
Total HpCDI						AP-Aleskin Kalin desekt			

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

FOIA_001406_0079673

Sample ID: PR1	07CFRB	oransauripaan riigotaen neesaman aransaarin oo finii oo oo oo iloo muu kale aanaan eegaan aa saasaa aa saasaa aanaa aa goo iliiniiniidhii 		EPA Method 1613
Project: L	ierra Solutions, Inc. ower Passiac River Study CSO/SWO 7-Aug-2013 9:00	Sample Data Matrix: Aqueous Sample Size: 10.0 L		Laboratory Data Lab Sample: 1300551-03 Date Received: 08-Aug-2013 8:51 QC Batch: B3H0058 Date Extracted: 22-Aug-2013 9:57 Date Analyzed: 23-Aug-13 19:47 Column: ZB-5MS Analyst: MAS
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard %R LCL-UCL Qualifier
2,3,7,8-TCDD	$\mathbf{M}_{\mathbf{M}}$	0.103	ana	IS 13C-2,3,7,8-TCDD 93.8 25 - 164
1,2,3,7,8-PeCDD	ND	0.0459		13C-1,2,3,7,8-PeCDD 107 25 - 181
1,2,3,4,7,8-HxCDD	M	0.0861		13C-1,2,3,4,7,8-HxCDD 83.7 32 - 141
1,2,3,6,7,8-HxCDD	ND	0.0895		13C-1,2,3,6,7,8-HxCDD 85.5 28 - 130
1,2,3,7,8,9-HxCDD	ND	0.0872		13C-1,2,3,7,8,9-HxCDD 93.6 32 - 141
1,2,3,4,6,7,8-HpCD	D ND	0.437		13C-1,2,3,4,6,7,8-HpCDD 105 23 - 140
OCDD	0.502		G	13C-OCDD 98.4 17 - 157
2,3,7,8-TCDF	ND	0.0647		13C-2,3,7,8-TCDF 94.4 24 - 169
1,2,3,7,8-PeCDF	ND	0.0719		13C-1,2,3,7,8-PeCDF 106 24 - 185
2,3,4,7,8-PeCDF	ND	0.114		13C-2,3,4,7,8-PeCDF 109 21 - 178
1,2,3,4,7,8-HxCDF	ND	0.230		13C-1,2,3,4,7,8-HxCDF 84.6 26 - 152
1,2,3,6,7,8-HxCDF	ND	0.0689		13C-1,2,3,6,7,8-HxCDF 80.4 26 - 123
2,3,4,6,7,8-HxCDF	ND /	0.0849		13C-2,3,4,6,7,8-HxCDF 82.2 28 - 136
1,2,3,7,8,9-HxCDF	ND	0.0968		13C-1,2,3,7,8,9-HxCDF 94.1 29 - 147
1,2,3,4,6,7,8-HpCD	P 0.513		6	13C-1,2,3,4,6,7,8-HpCDF 90.1 28 - 143
1,2,3,4,7,8,9-HpCD	F ND	0.109		13C-1,2,3,4,7,8,9-HpCDF 97.5 26 - 138
OCDE/	1.53		G	13C-OCDF 92.4 17 - 157
Mariana de la composição	,			CRS 37CI-2,3,7,8-TCDD 102 35 - 197
			2-	Toxic Equivalent Quotient (TEQ) Data
				TEQMinWHO2005Dioxin 0.00574
TOTALS				
Total TCDD	ND	0.168		
-Total PeCDD	consistence of the second of t	where 0.1 12 is a consequence of the conseq		
Total HxCDD	ND	0.148	and the second	La CAN Land Control of the Control o
Total HpCDD	ND	0.437		
Total TCDF	ND	0.141		
Total PeCDF	ND	0.114		
Total HxCDF	ND	0.259	a teatro escablo e escreta	The production of the state of
Total-HpCDF	0.513			
	fc estimated detection limit I maximum possible concentration			LCL-UCL- Lower control limit - upper control limit Min-The TEQ is calculated using zero for the concentration of congeners that are not detected.

Sample ID: PR1080	CFFB							EPA Met	hod 16131
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO ug-2013 13:45	Sample Data Matrix: Aqueous Sample Size: 10.1 L		Lab QC	poratory Data Sample: Batch: e Analyzed:	1300551-02 B3H0058 23-Aug-13 18:59	Date Received: Date Extracted: Column: ZB-5MS	22-Aug-2013	9:57
Analyte C	onc. (pg/L)	DL EMPC	Qualifiers	1	Labeled Stand	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND emerge in the company of the comp	0.00		IS	13C-2,3,7,8-T	CDD	83.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0437			13C-1,2,3,7,8-	PeCDD	86.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.111			13C-1,2,3,4,7,	8-HxCDD	70.2	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.122		1.	13C-1,2,3,6,7,	8-HxCDD	67.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.128			13C-1,2,3,7,8,	9-HxCDD	66.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.393			13C-1,2,3,4,6,	7,8-HpCDD	71,2	23 - 140	
OCDD	ND	0.466			13C-OCDD		64.3	17 - 157	
2,3,7,8-TCDF	ND	0.0424			13C-2,3,7,8-T	CDF	88.8	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0508			13C-1,2,3,7,8-	PeCDF	90.8	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0492			13C-2,3,4,7,8-	PeCDF	95.1	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0523			13C-1,2,3,4,7,		64.9	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0570	and the second of the second of the second		13C-1,2,3,6,7,		63.1	26 - 123	era er sallitta albantig s
2,3,4,6,7,8-HxCDF	ND	0.0314			13C-2,3,4,6,7,	the section of the contract of the section of the s	68.9	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0422	The Committee Committee Committee (Committee Committee C		13C-1,2,3,7,8,		68.0	29 - 147	
1,2,3,4,6,7,8-HpCDE	ND	0.125			13C-1,2,3,4,6,		61.5	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0890			13C-1,2,3,4,7,	properties of the contract of	67.4	26 - 138	
OCDF /	ND	0.161			13C-OCDF		61.2	17 - 157	
Annual Commission of the Commi			nodenna symmetrija in de produktiva komentra p	CRS	37Cl-2,3,7,8-T	CDD	102	35 - 197	
					Toxic Equival	ent Quotient (TEQ) Data		***************************************
					TEQMinWHO	2005Dioxin	0.00		
TOTALS									
Total TCDD	ND	0.103		James yes		erskere være far til ser i	Samuel State of the State of th	arson and a series of the contract of the cont	
Total PeCDD	ND	0.100							
Total HxCDD	ND	0.290	gegene. Nava ang kanalang kanalang kanalang	Judina sa		North ment a secular alla sentra se	er og selver til er og til er og er og selver og er		. Nasawa in Kale
Total HpCDD	ND	0.393				N/w			
Total TCDF	ND	0.0424		Janes :	- Y AD	\mathcal{U}/π	the said the trade to the said of the said		
Total PeCDF	ND	0.0529			20				
Total HxCDF	ND	0.0615	er albailt a command fra bail	department of			ate more a constalla disense.	assating a separate for a	
Total HpCDF	ND	$-\infty$		1					
DL - Sample specife est EMPC - Estimated max	timated detection limit					nit - upper control limit sing zero for the concent	ration of congeners that	are not detected.	

Sample ID: PR103	SWWFB					EPA Me	thod 1613)
Project: Low	ra Solutions, Inc. ver Passiac River Study CSO/SWO Aug-2013 10:00	Sample Data Matrix: Aqueous Sample Size: 10.1 L		Laboratory Data Lab Sample: 1300551-01 QC Batch: B3H0058 Date Analyzed: 23-Aug-13 18:	Date Received: Date Extracted: 10 Column: ZB-5M!	22-Aug-2013	9:57
Analyte (Conc. (pg/L)	DL: EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
-2,3,7,8-TCDD	ND ND	0.104		IS 13C-2,3,7,8-TCDD	84.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0996		13C-1,2,3,7,8-PeCDD	95.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0783		13C-1,2,3,4,7,8-HxCDD	75.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.0896		13C-1,2,3,6,7,8-HxCDD	72.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.0930		13C-1,2,3,7,8,9-HxCDD	73.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.135		13C-1,2,3,4,6,7,8-HpCDD	82.6	23 - 140	
OCDD	ND	0.993		13C-OCDD	69.8	17 - 157	
2,3,7,8-TCDF	ND	0,0479		13C-2,3,7,8-TCDF	87.3	24 - 169	
1,2,3,7,8-PeCDF	ND	< 0.0533		13C-1,2,3,7,8-PeCDF	103	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0565		13C-2,3,4,7,8-PeCDF	102	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0713		13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0740		13C-1,2,3,6,7,8-HxCDF	66.1	26 - 123	
2,3,4,6,7,8-HxCDF	ND_	0.0519		13C-2,3,4,6,7,8-HxCDF	74.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0738		13C-1,2,3,7,8,9-HxCDF	72.2	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.109		13C-1,2,3,4,6,7,8-HpCDF	69.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0542		13C-1,2,3,4,7,8,9-HpCDF	78.8	26 - 138	
OCDF	ND	0.308		13C-OCDF	68.6	17 - 157	
and the second s				CRS 37CI-2,3,7,8-TCDD	105	35 - 197	
				Toxic Equivalent Quotient (TI	Q) Data		***************************************
				TEQMinWHO2005Dioxin	0.00		
TOTALS							
Total TCDD	ND	0.241					
Total PeCDD	ND	0.0996					
Total HxCDD	ND	0.134			and the first of the second of the second		
Total HpCDD	ND	0.239					
Total TCDF	ND	0.0479	a nautos com autoria		and the first services such as		
Total PeCDF	ND	0.0925					
Total HxCDF	ND	0.0824		and the first street of the state of the first state of the state of t	ennemente esta propositione de la company		
Total HpCDF	which the $M_{ m D}$ is the contract of the c	0.146					
	stimated detection limit eximum possible concentration			LCL-UCL- Lower control limit - upper control lim Min-The TEQ is calculated using zero for the conc		are not detected.	

Sample ID: PR	1103LDEB (Primary)							EPA Mei	hod 1613I
Project:	Tierra Solutions, Inc. Lower Passiac River Study CSO/SWO 08-Aug-2013 18:13	Sample Data Matrix: Aqueous Sample Size: 10.2 L		Lal QC	Batch:	1300565-01 B3H0058 23-Aug-13 21:2	Date Received: Date Extracted: 4 Column: ZB-5MS	22-Aug-2013	9:57
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers		Labeled Standa	rd	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	and the second s	0.0762	······································	IS	13C-2,3,7,8-TCI	DD	64.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0893			13C-1,2,3,7,8-Pe	:CDD	75.3	25 - 181	
1,2,3,4,7,8-HxCDI	D ND	0.113			13C-1,2,3,4,7,8-	HxCDD	63.7	32 - 141	
1,2,3,6,7,8-HxCDI	D ND	0.129			13C-1,2,3,6,7,8-	HxCDD	64.9	28 - 130	
1,2,3,7,8,9-HxCDI	D ND	0.148			13C-1,2,3,7,8,9-	HxCDD	61.1	32 - 141	
1,2,3,4,6,7,8-HpCl	DD ND	_0:207			13C-1,2,3,4,6,7,	8-HpCDD	80.3	23 - 140	To the their the constitution
OCDD	0.935		G ()		13C-OCDD		73.5	17 - 157	
2,3,7,8-TCDF	ND	0,0517			13C-2,3,7,8-TCI)F	72.7	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0652			13C-1,2,3,7,8-Pe	CDF	69.4	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0670			13C-2,3,4,7,8-Pe	:CDF	73.5	21 - 178	
1,2,3,4,7,8-HxCDI	F ND	0.0666			13C-1,2,3,4,7,8-		58.0	26 - 152	
1,2,3,6,7,8-HxCDI	the control of the co	0.0649			13C-1,2,3,6,7,8-	HxCDF	55.5	26 - 123	er termina (hin er enist te regista (hin ben
2,3,4,6,7,8-HxCDI	and the first and a first transition of the second of the	0.0711			13C-2,3,4,6,7,8-		64.1	28 - 136	
1,2,3,7,8,9-HxCDI		0.0949	er en		13C-1,2,3,7,8,9-		61.9	29 - 147	
1,2,3,4,6,7,8-HpCJ		0.220			13C-1,2,3,4,6,7,1		68.3	28 - 143	
1,2,3,4,7,8,9-HpCl	Applied to the control of the contro	0.0888			13C-1,2,3,4,7,8,9	Carried and Carried States of Contract of the	74.6	26 - 138	e transcription de l'encourage de l'est
OCDP	ND	0.120			13C-OCDF		70.0	17 - 157	
glania en			egadanan enaggippina minematana mejak	CRS	37CI-2,3,7,8-TC	DD	70.2	35 - 197	and the second of the second of the
					Toxic Equivalen	t Quotient (TE	Q) Data		
					TEQMinWHO20	05Dioxin	0.000281		
TOTALS									
Total TCDD	ND	0.0762							
Total-PeCDD	ND	0:0893							
Total HxCDD	ND	0.234			1. 1 May 1				
Total HpCDD	0.173	0.379			(1/ _{1.2.} / 1/3)				
Total TCDF	ND	-0.0517			- X - (1)	en e			
Total PeCDF	ND	0.0947							
Total HxCDF	ND	0.108				and the second of the second			
Total HpCDF	ND	-0.237							
	cifc estimated detection limit ed maximum possible concentration				CL- Lower control limit e TEQ is calculated usin	and the second second	ntration of congeners that	are not detected.	

Project 1300565

Project: Low	ra Solutions, Inc. ver Passiac River Study CSO/SWO Aug-2013 18:13	Sample Data Matrix: Aqueous Sample Size: 9.75 L		Laborat Lab Sam QC Bate Date An	eh:	1300565-03 B3H0058 23-Aug-13 20:3:	Date Received: Date Extracted: 5 Column: ZB-5MS	22-Aug-2013	9:57
Analyte C	Conc. (pg/L)	DL EMPC	Qualifiers	Lal	beled Standa	ird	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	$\mathbf{MD}_{\mathbf{M}}$		and the second second	IS 130	C -2,3,7,8- TC	DD	80.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0533		130	C-1,2,3,7,8-P	eCDD	89.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.172		130	C-1,2,3,4,7,8	-HxCDD	85.2	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.346		130	C-1,2,3,6,7,8	-HxCDD	89.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.189		130	C-1,2,3,7,8,9	HxCDD	87.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	0.980		G	130	C-1,2,3,4,6,7	8-HpCDD	93.9	23 - 140	
OCDD	13.3			130	C-OCDD		85.8	17 - 157	
2,3,7,8-TCDF	ND	0.0666		130	C-2,3,7,8-TC	DF	94.6	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0945		130	C-1,2,3,7,8-P	eCDF	86.8	24 - 185	
2,3,4,7,8-PeCDF	ND	0.188		130	C-2,3,4,7,8-P	eCDF	91.3	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0573		130	C-1,2,3,4,7,8	HxCDF	79.2	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0592		130	C-1,2,3,6,7,8	HxCDF	75.8	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0671		130	3-2,3,4,6,7,8	HxCDF	82.5	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0800		130	C-1,2,3,7,8,9	HxCDF	86.5	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.183		130	C-1,2,3,4,6,7,	8-HpCDF	85,3	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0488		130	C-1,2,3,4,7,8,	9-HpCDF	88.8	26 - 138	
OCDF	ND	0.158		130	C-OCDF		81.4	17 - 157	
Caraca a conservamente de la conservamente del conservamente del conservamente de la conservamente de la conservamente de la conservamente del conservamente de la conservamente del conservamente de la conservamente del conse		Contraction and an advantage (Contraction Contraction Co	Westware/Obstation in determination was a concept (1990)	CRS 370	CI-2,3,7,8-TC	DD	88.2	35 - 197	
				Tox	cic Equivaler	nt Quotient (TEC)) Data		
				TEC	QMinWHO2	005Dioxin	0.0138		
TOTALS									Televisia de la companya de la comp
Total TCDD	ND	0.0602	n Aspatrajoroj Lagreco Aldereo (1997)				engan bagsara kalpudsi terse Silina t	kanada in nasara mada si salah	ersal especiel Des
-Total PcCDD	$\mathbf{A}_{\mathbf{p}}\mathbf{A}_{p$	0.108			0				
Total HxCDD	ND	0.0650			111				
Total HpCDD	1.97	7 121			KV, 15/1/,				
Total TCDF	ND ND	0.154 0.202			* 0\V				
Total PeCDF	0.116	0.202							
Total HxCDF Total HpCDF		0.10 /							
DL - Sample specife es	stimated detection limit ximum possible concentration	N. C. T. C.		LCL-UCL- Lov Min-The TEQ	wer control limit	t - upper control limit ng zero for the concen	tration of congeners that	are not detected.	

Sample ID: PR103LP	PEB (Primary)				igi-commonweles-commonweles-				EPA Mei	hod 16131
Project: Lower P	olutions, Inc. Passiac River Study CSO/SWO -2013 18:13	Sampl Matri			Lab : QC I	oratory Data Sample: Batch: Analyzed:	1300565-02 B3H0059 24-Aug-13 12:00	Date Received: Date Extracted: Column: ZB-5MS	22-Aug-2013	
Analyte Cone	c. (pg/Sample)	DL	EMPC	Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.287		animorani and a salah animang da salah ani	IS	13C-2,3,7,8-1	CDD	84.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.420		The state of the s		13C-1,2,3,7,8	-PeCDD	75.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.483				13C-1,2,3,4,7	,8-HxCDD	89.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.477	And the second s			13C-1,2,3,6,7	,8-HxCDD	95.1	28 - 130	2 50 00 4
1,2,3,7,8,9-HxCDD	ND	0.582				13C-1,2,3,7,8	,9-HxCDD	90.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.895				13C-1,2,3,4,6	,7,8-HpCDD	79.0	23 - 140	
OCDD	ND		3.38			13C-OCDD		79.2	17 - 157	
2.3.7.8-TCDF	ND	0.282				13C-2,3,7,8-T	CDF	79.9	24 - 169	
1,2,3,7,8-PeCDF	ND	0.230				13C-1,2,3,7,8	-PeCDF	77.1	24 - 185	
2,3,4,7,8-PeCDF	ND	0.230				13C-2,3,4,7,8	-PeCDF	72.9	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.153			🍍 into a sini Series and	13C-1,2,3,4,7		89,3	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.145	and the second s		B	13C-1,2,3,6,7		98.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.173			👢 Maria, marini	13C-2,3,4,6,7		93.1	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.252	State	and the second state of the second state of the second second second second second second second second second		13C-1,2,3,7,8	per 1917 in a contract for the contract of the contract of the	86.6	29 - 147	
	ND	0.246			I s	13C-1,2,3,4,6		83.1	28 - 143	
1,2,3,4,7.8,9-HpCDF	ND	0.422	, de como esta esta esta de la companya de la comp		* No. 20. 20. 20. 20. 20. 20. 20. 20. 20. 20	13C-1,2,3,4,7	great for the control of the control	80.1	26 - 138	
OCDF	ND	0.479				13C-OCDF		77.6	17 - 157	
					B. C. Carris, American	37Cl-2,3,7,8-	TCDD	84.9	35 - 197	sila en
					diameter and the second	NAMES OF THE OWNER, WHEN PERSONS AND THE OWNER, WHEN PERSO	lent Quotient (TEQ			· · · · · · · · · · · · · · · · · · ·
						TEQMinWH0)2005Dioxin	0.00		
TOTALS										
Total TCDD	ND	0.287	and the second of the second o			and a second				
Total PeCDD	ND	-0.420				1 11				
Total HxCDD	ND	0.582	and the second s			1/1	and a late of the second	garangan kannagan pantan baran salah s	gentineerige to make the	
Total HpCDD	ND	0.895			V	, 49 ₀ ,				
Total TCDF	ND	0.282	the sectors are an entitle or the control of	or Americans are the 1961		<i></i>			. The second of the second of	
Total PeCDF	ND	0.230								
Total HxCDF	ND	0.252		. N. Navas National Antonio (1997)	Language North	San Talahan da Artista		Jacobs Control of Comments of	es estamana de como como en	and the second second
Total HpCDF	ND sted detection limit	0.422					mit - upper control limit			

Client Data		Sample	Data		Lal	oratory Data				
	ra Solutions, Inc.	Matrix				Sample:	1300565-04	Date Received:	13-Aug-2013	9:45
Project: Low	er Passiac River Study CSO/SWO			:	QC	Batch:	B3H0064	Date Extracted:	22-Aug-2013	15:48
Date Collected: 08-A	Aug-2013 18:13			·	Dat	e Analyzed:	24-Aug-13 12:52	Column: ZB-5MS	S Analyst: ANP	
Analyte (Conc. (pg/Sample)	DL	ЕМРС	Qualifiers		Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.285		anning t	IS	13C-2,3,7,8-T	CDD	80.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.332				13C-1,2,3,7,8	-PeCDD	87.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.477				13C-1,2,3,4,7	,8-HxCDD	91.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.492				13C-1,2,3,6,7	8-HxCDD	92.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.563				13C-1,2,3,7,8	9-HxCDD	93.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	1.64			G		13C-1,2,3,4,6	.7,8-HpCDD	77.3	23 - 140	
OCDD	11.8					13C-OCDD		70.0	17 - 157	
2,3,7,8-TCDF	ND	0,308				13C-2,3,7,8-T	CDF	70.2	24 - 169	
1,2,3,7,8-PeCDF	ND >	0.206				13C-1,2,3,7,8	-PeCDF	83.7	24 - 185	
2,3,4,7,8-PeCDF	ND	0.192				13C-2,3,4,7,8	-PeCDF	86.4	21 - 178	and the second second second second
1,2,3,4,7,8-HxCDF	ND /	0.238				13C-1,2,3,4,7,	8-HxCDF	91.9	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.223				13C-1,2,3,6,7,	8-HxCDF	102	26 - 123	Sangar Star San
2,3,4,6,7,8-HxCDF	ND /	0.263				13C-2,3,4,6,7,	8-HxCDF	95.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.417				13C-1,2,3,7,8	9-HxCDF	87.0	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.343				13C-1,2,3,4,6,		78.5	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.596	The second secon			13C-1,2,3,4,7,	8,9-HpCDF	69.4	26 - 138	
OCDE/	ND		1.62			13C-OCDF		69.3	17 - 157	
pplication in maximum reprime promise among reprime and a continuous and a					CRS	37Cl-2,3,7,8-1	TCDD	79.4	35 - 197	
						Toxic Equival	lent Quotient (TEQ) Data		
						TEQMinWHC)2005Dioxin	0.0199		
TOTALS										
Total TCDD	ND	0.285	Ste Danker Steptom Orevo		See grant to		and the second of the second o			and the second of the second
Total PcCDD	······································	0.332			Sin					
Total HxCDD	ND	0.563	The second secon	en en en en en en Este de la laca		VIII - 11,	<mark>e.</mark> alia, east onatoanan ai essa.	adagtikan territoria kan	sates seemiliseen 1888 keess	
Total HpCDD	3.88	and the second s				$\Delta = i \beta_{h,r}$				
Total TCDF	ND	0.308				$\mathcal{O}N$			National and and the state	ansa gerakanan iska
Total PeCDF	ND	0.206								
Total HxCDF	- ND	0.417		8686844604004	nasalina					
Total HpCDF	ND stimated detection limit	-0.596								

Sample ID: PR10	08CFRB				in period and a significant an	EPA Me	thod 1613]
Project: Lo	erra Solutions, Inc. ower Passiac River Study CSO/SWO -Oct-2013 8:30	Sample Data Matrix: Aqueous Sample Size: 1.00 L		Laboratory Data Lab Sample: 1300678-01 QC Batch: B3J0088 Date Analyzed: 27-Oct-13 04:0	Date Received Date Extracted 7 Column: ZB-5M	: 22-Oct-2013	5, 500 (5)
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	$\mathbf{A}_{\mathbf{A}}}}}}}}}}$	0.127	manusamuningi da sa	IS 13C-2,3,7,8-TCDD	78.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0504		13C-1,2,3,7,8-PeCDD	56.7	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0550		13C-1,2,3,4,7,8-HxCDD	64.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.0654		13C-1,2,3,6,7,8-HxCDD	64.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.0695		13C-1,2,3,7,8,9-HxCDD	61.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND.	0.117		13C-1,2,3,4,6,7,8-HpCDD	55.0	23 - 140	and the second second
OCDD	ND	0.453		13C-OCDD	46.6	17 - 157	
2,3,7,8-TCDF	ND	0.0343		13G-2,3,7,8-TCDF	80.8	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0341		13C-1,2,3,7,8-PeCDF	63.5	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0330		13C-2,3,4,7,8-PeCDF	63.2	21 - 178	mentalis menter de la completa de l
1,2,3,4,7,8-HxCDF	0.127		G	13C-1,2,3,4,7,8-HxCDF	65.1	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0311		13C-1,2,3,6,7,8-HxCDF	65.4	26 - 123	n e jane and America
2,3,4,6,7,8-HxCDF	ND /	0.0375		13C-2,3,4,6,7,8-HxCDF	63.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0535		13C-1,2,3,7,8,9-HxCDF	59,2	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.184		13C-1,2,3,4,6,7,8-HpCDF	57.1	28 - 143	
1,2,3,4,7,8,9-HpCDF		0.0816		13C-1,2,3,4,7,8,9-HpCDF	54.6	26 - 138	
OCDF .	0.596		G	13C-OCDF	44.8	17 - 157	
				CRS 37Cl-2,3,7,8-TCDD	87.4	35 - 197	taga e tribag et tita teta an teggi as a
TOTALS							
Total TCDD	0.0700	0.197					
Total PeCDD	MD	0.0504					and the second s
Total HxCDD	ND	0.0695	and the second s	11/1/1/1/			
Total HpCDD	ND	0.117					
Total TCDF	ND	0.0343					
Total PeCDF	ND	0.0341					
Total HxCDF	0.127						
Total HpCDF	ND a estimated detection limit	(A) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					

Sample ID: PRICSOCLYWW-02B EPA Method 1613B									
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiac River Study CSO/SWO Sample Size: 9.73 L Date Collected: 07-Dec-2013 2:15				Laboratory Data Lab Sample: 1300844-01 Date Received: 11-Dec-2013 10:31 QC Batch: B4A0025 Date Extracted: 07-Jan-2014 8:15 Date Analyzed: 13-Jan-14 08:36 Column: ZB-5MS Analyst: MAS					
Analyte C	onc. (pg/L)	DL	EMPC	Qualifiers	1	Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD		0.246			1S	13C-2,3,7,8-TCDD	67.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.728				13C-1,2,3,7,8-PeCDD	68.0	25 - 181	The Control of the Control
1,2,3,4,7,8-HxCDD	0.801			/ G		13C-1,2,3,4,7,8-HxCDD	51.5	32 - 141	
,2,3,6,7,8-HxCDD	2.56			G		13C-1,2,3,6,7,8-HxCDD	52.9	28 - 130	
,2,3,7,8,9-HxCDD	1.74			Ğ		13C-1,2,3,7,8,9-HxCDD	48.7	32 - 141	
1,2,3,4,6,7,8-HpCDD	84.3					13C-1,2,3,4,6,7,8-HpCDD	49.5	23 - 140	The section
OCDD	1090					13C-OCDD	52.8	17 - 157	
1.3.7.8-TCDF	ND	/ 0.396				13C-2.3.7.8-TCDF	76.7	24 - 169	
,2,3,7,8-PeCDF	ND	0.436				13C-1,2,3,7,8-PeCDF	90.8	24 - 185	
2,3,4,7,8-PeCDF	0.537			G	1	13C-2,3,4,7,8-PeCDF	91.6	21 - 178	
1,2,3,4,7,8-HxCDF	1.68			$\mathbf{c} \in \mathbf{c}$		13C-1,2,3,4,7,8-HxCDF	65,5	26 - 152	
1,2,3,6,7,8-HxCDF	1.83			Ğ		13C-1,2,3,6,7,8-HxCDF	56.8	26 - 123	
2,3,4,6,7,8-HxCDF	J1:72			G		13C-2,3,4,6,7,8-HxCDF	55.0	28 - 136	
1.2.3.7.8.9-HxCDE	ND	0.504				13C-1.2.3.7.8.9-HxCDF	52.1	29 - 147	
1,2,3,4,6,7,8-HpCDF	25.1		Baltin telepis			13C-1,2,3,4,6,7,8-HpCDF	48.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND		1.82			13C-1,2,3,4,7,8,9-HpCDF	55.8	26 - 138	
Э́брг — —	60,4		********************************			13C-OCDF	51.0	17 - 157	
			and the second second		CRS	37CI-2,3,7,8-TCDD	113	35 - 197	energy many
TOTALS		***************************************							
Total TCDD	ND	0.308							
Fotal PcCDD			4:60						
Total HxCDD	19.7		- interest and the second						
Total HpCDD	200	The second second second							
Total TCDF	0.370								
Total PcCDF	4.95		7.00						
Total HxCDF	28.4								
Fotal HpCDF	52,4		54.2	Automorphism of the section of the s	1				

Project 1300844

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Sample ID: PR1WWDUP-02B							EPA Method 1613B			
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO c-2013 2:15	Sample Matri Samp			Lal QC	boratory Data 5 Sample: 1300844-02 Batch: B4A0025 te Analyzed: 13-Jan-14 09:2		ved: 11-Dec-2013 eted: 07-Jan-2014 5MS Analyst: MAS	8:15	
Analyte Co	nc. (pg/L)	DĻ	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers	
2, 3,7,8 TCDD		0.166			IS	13C-2,3,7,8-TCDD	63,6	25 - 164		
1,2,3,7,8-PeCDD	ND		0.421			13C-1,2,3,7,8-PeCDD	60.2	25 - 181		
1,2,3,4,7,8-HxCDD	0.893			∕′ G	1885	13C-1,2,3,4,7,8-HxCDD	47.6	32 - 141		
1,2,3,6,7,8-HxCDD	2.76					13C-1,2,3,6,7,8-HxCDD	49,5	28 - 130		
1,2,3,7,8,9-HxCDD	1.94			G		13C-1,2,3,7,8,9-HxCDD	45.4	32 - 141		
1,2,3,4,6,7,8-HpCDD	87.4	_				13C-1,2,3,4,6,7,8-HpCDD	46.1	23 - 140		
OCDD	1230					13C-OCDD	44.7	17 - 157		
2,3,7,8-TCDF	0.159			G		13C-2,3,7,8-TCDF	65.2	24 - 169		
1,2,3,7,8-PeCDF	ND	0.495				13C-1,2,3,7,8-PeCDF	64.5	24 - 185		
2,3,4,7,8-PeCDF	ND	0.490				13C-2,3,4,7,8-PeCDF	66.6	21 - 178		
1,2,3,4,7,8-HxCDF	2.05			G		13C-1,2,3,4,7,8-HxCDF	54.9	26 - 152		
1,2,3,6,7,8-HxCDF	2.11			G		13C-1,2,3,6,7,8-HxCDF	51.6	26 - 123		
2,3,4,6,7,8-HxCDF	_1.94			G		13C-2,3,4,6,7,8-HxCDF	50.2	28 - 136		
1,2,3,7,8,9-HxCDE	ND	0.292				13C-1,2,3,7,8,9-HxCDF	48.9	29 - 147		
1,2,3,4,6,7,8-HpCDF	29.2					13C-1,2,3,4,6,7,8-HpCDF	46.4	28 - 143		
1,2,3.4,7,8,9-HpCDF	2.61					13C-1,2,3,4,7,8,9-HpCDF	50.5	26 - 138		
€CDF	71.0					13C-OCDF	45.0	17 - 157		
	ne arive transfer and security of	ministration of the			CRS	37CI-2,3,7,8-TCDD	105	35 - 197		
TOTALS			· · · · · · · · · · · · · · · · · · ·							
Total TCDD	ND	0.224								
Fotal PeCDD	4.50		4,92							
Total HxCDD	20.9									
Total HpCDD	193	The second secon								
Total TCDF	0.869									
Total PeCDF	7.03	e de la companya de l								
Total HxCDE	34.0				14,536					
Total HpCDF	nated detection limit	********************************			1	and the second of the second o				

Project 1300844

EMPC - Estimated maximum possible concentration

2/20/14

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Sample ID: PR1CS	SOCLYHP-02B							EPA Me	thod 1613B
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO ec-2013 2:15	Sample Size: 13	olid 3.8 g 5.3	Lat QC	poratory Data Sample: Batch: e Analyzed:		Date Received: Date Extracted: Column: ZB-5MS Column: SP-2331	Analyst: MAS	10:02
Analyte C	onc. (pg/g)	DL EMPC	Qualifiers		Labeled Stan		%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	1-24		and the second s	IS	13C-2,3,7,8-T	CDD	87.4	25 - 164	
1,2,3,7,8-PeCDD	ND	3.74			13C-1,2,3,7,8-	PeCDD	92.2	25 - 181	
1,2,3,4,7,8-HxCDD	6.32				13C-1,2,3,4,7,	8-HxCDD	93.4	32 - 141	
1,2,3,6,7,8-HxCDD	21.1				13C-1,2,3,6,7,	8-HxCDD	94.5	28 - 130	
1,2,3,7,8,9-HxCDD	152				13C-1,2,3,7,8,	9-HxCDD	92.8	32 - 141	
1,2,3,4,6,7,8-HpCDD	700				13C-1,2,3,4,6,	7.8-HpCDD	104	23 - 140	
OCDD	9590		.		13C-OCDD		112	17 - 157	
2,3,7,8-TCDF	3,47				13C-2,3,7,8-T	CDF	90.5	24 - 169	er transfer av 1976 i av 1997 i 1997 i 1994 i 1994 i 1994 i
1,2,3,7,8-PeCDF	2.78				13C-1,2,3,7,8-	PeCDF	95.4	24 - 185	
2,3,4,7,8-PeCDF	4.04		G		13C-2,3,4,7,8-	8,48,00	96.3	21 - 178	
1,2,3,4,7,8-HxCDF	12.0				13C-1,2,3,4,7,	and British and the first to	88.1	26 - 152	
1,2,3,6,7,8-HxCDF	11.6		and the second second second second second		13C-1,2,3,6,7,		88.0	26 - 123	sasting a magnification with the
2,3,4,6,7,8-HxCDF	10.5				13C-2,3,4,6,7,		87.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	2.60			13C-1,2,3,7,8,		93.4	29 - 147	and produced to produce and the property
1,2,3,4,6,7,8-HpCDE	205				13C-1,2,3,4,6,		90.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	13.3				13C-1,2,3,4,7,	and the state of t	100	26 - 138	and the state of t
OCDF /	444				13C-OCDF		98.8	17 - 157	
<u>January de la company de la c</u>				CRS	37CI-2,3,7,8-T	CDD	102	35 - 197	
TOTALS					***************************************				
Total TCDD	14.0 2, 8				6116				
Total PeCDD	42.0	on the second second and the second and the second				engels Til service en		Street Control of the Street Street Street	
Total HxCDD	186		The second secon		2/26/1				
Total HpCDD	1620	The second secon	Merchania (Control Control Con		A STATE OF THE STA		manufacture and a second		man is the formal of the s
Total TCDF	66.1	67.4							
Total PeCDF	136		W. T						
Total HxCDF	-242					STANKS SE			
Total HpCDF	440				1	Anna a		and the second second	
DL - Sample specifc est	bimated detection limit			ICLUC	I - I ower control lin	nit - upper control lim	it.	***************************************	

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Sample ID: PR1HP	DUP-02B								EPA Me	thod 1613B
Project: Lower	Solutions, Inc. r Passiac River Study CSO/SWO cc-2013 2:15	Sample Data Matrix: Sample Size: % Solids:	Solid 15,4 g 36,4		Lab QC	boratory Data Sample: Batch: te Analyzed :		Date Received: Date Extracted: Column: ZB-5MS Column: SP-2331	Analyst: MAS	10:02
Analyte Co	onc. (pg/g)	DL EMP	C	Qualifiers		Labeled Stani	national process and the second secon	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDF	1.60 3.98 6.16 19.8 14.2 636 9560 2.88 2.66 2.82 11.7 11.1 7.89 ND 197 12.5	2.76		G G G		13C-2,3,7,8-T 13C-1,2,3,7,8- 13C-1,2,3,4,7, 13C-1,2,3,7,8, 13C-1,2,3,4,6, 13C-OCDD 13C-2,3,7,8-T 13C-1,2,3,4,7, 13C-1,2,3,4,7, 13C-1,2,3,4,7, 13C-1,2,3,4,7, 13C-1,2,3,4,6,7, 13C-1,2,3,4,6,7, 13C-1,2,3,4,6,7,	PeCDD 8-HxCDD 8-HxCDD 9-HxCDD 7,8-HpCDD CDF PeCDF PeCDF 8-HxCDF 8-HxCDF 8-HxCDF 9-HxCDF 7,8-HpCDF	85.7 91.9 89.5 92.1 90.3 101 109 86.9 91.8 93.3 83.9 84.0 85.6 87.9 88.4 95.2	25 - 164 25 - 181 32 - 141 28 - 130 32 - 141 23 - 140 17 - 157 24 - 169 24 - 185 21 - 178 26 - 152 26 - 123 28 - 136 29 - 147 28 - 143 26 - 138	
OCDF	458			en e	CRS	13C-OCDF 37Cl-2,3,7,8-1	CDD	99.7 98.9	17 - 157 35 - 197	
TOTALS										
Total TCDD Total PeCDD Total HxCDD Total HpCDD Total TCDF Total PeCDF Total HxCDF	10.3 42.4 166 1460 64.3 121 231	13.				E JA				
Tetal HpCDF	mated detection limit				<u></u>		oit - upper control limit			***************************************

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Sample ID: PR109C	FRB								EPA Me	thod 1613
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO t-2013 12:00	Sample Matri Samp			Laborat Lab San QC Batc Date An	:h:	1300693-01 B3K0002 04-Nov-13 18:2	Date Received: Date Extracted: 2 Column: ZB-5MS	de ouer last to de ou chandre condi-	8:14
Analyte Co	nc. (pg/L)	DL	EMPC	Qualifiers	La	beled Stand	lard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD					IS 130	C-2,3,7,8-T	CDD	84.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.109			130	C-1,2,3,7,8-	PeCDD	69.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0926			130	3-1,2,3,4,7,	8-HxCDD	61.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.100			130	0-1,2,3,6,7,	8-HxCDD	68.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.125			130	C-1,2,3,7,8,	9-HxCDD	61.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.189			130	C-1,2,3,4,6,	7,8-HpCDD	51.5	23 - 140	
OCDD	2.70			G	130	C-OCDD		43.6	17 - 157	
2,3,7,8-TCDF	0.176			G	130	C-2,3,7,8-T	CDF	86.0	24 - 169	
1,2,3,7,8-PeCDF	ND	0.0840			130	C-1,2,3,7,8-	PeCDF	69.4	24 - 185	
2,3,4,7,8-PeCDF	ND		0.286		130	0-2,3,4,7,8-	PeCDF	73.8	21 - 178	Activities and and
1,2,3,4,7,8-HxCDF	2.51			G	130	0-1,2,3,4,7,	8-HxCDF	61.8	26 - 152	
1,2,3,6,7,8-HxCDF	0.422			G	130	C-1,2,3,6,7,	8-HxCDF	62.7	26 - 123	
2,3,4,6,7,8-HxCDF	0.215			G	130	C-2,3,4,6,7,	8-HxCDF	63.9	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.115			130	3-1,2,3,7,8,	9-HxCDF	58.4	29 - 147	
1,2,3,4,6,7,8-HpCDE	8.23				130	0-1,2,3,4,6,	7,8-HpCDF	55.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.220			130	0-1,2,3,4,7,	8,9-HpCDF	53.1	26 - 138	
OCDF/	22.0				Book and the Section of the Control	C-OCDF		46.3	17 - 157	
- cyclin and the commence of t					CRS 370	01-2,3,7,8-1	CDD	90.6	35 - 197	
TOTALS			·							***************************************
Total TCDD	1.42		1.62							
Total-PeCDD	$= (1 + 1)^{-1} \sum_{i \in \mathcal{C}_{i}} (1$	0.109			1 3.48	Alle				
Total HxCDD	ND	0.125	The state of the s			<i>(</i>)*				
Total HpCDD	0.345	and the second s	and an extended an extended and an extended an		Y o					
Total TCDF	0.802									
Total PeCDF	1.23	and the second second second	1.89	A Service Company Service		A reference of the second	eng na sang assault aya ay	and the second second second	Action to the second	North Section
Total HxCDF	4.92		5.06							
Total HpCDF DL - Sample specife esti							nit - upper control limit			

Sample ID: PR101	HLLC					EPA Me	thod 1613E
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO ct-2013 14:30	Sample Data Matrix: Aqueous Sample Size: 9.17 L		Laboratory Data Lab Sample: 1300693-02 QC Batch: B3K0002 Date Analyzed: 04-Nov-13 19:13	Date Received Date Extracted Column: ZB-5M	: 01-Nov-2013	8:14
Analyte C	onc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.0605		IS 13C-2,3,7,8-TCDD	82.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.0680		13C-1,2,3,7,8-PeCDD	75.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0665		13C-1,2,3,4,7,8-HxCDD	73.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.0731		13C-1,2,3,6,7,8-HxCDD	80.4	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.0819		13C-1,2,3,7,8,9-HxCDD	75.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.170		13C-1,2,3,4,6,7,8-HpCDD	63.2	23 - 140	
OCDD	ND	0.152		13C-OCDD	56.8	17 - 157	
2,3,7,8-TCDF	ND	0.0438		13C-2,3,7,8-TCDF	80.8	24 - 169	and the second second sections of
1,2,3,7,8-PeCDF	ND	0.0308		13C-1,2,3,7,8-PeCDF	77.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.0283	and the second of the second of the second	13C-2,3,4,7,8-PeCDF	80.2	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.0278		13C-1,2,3,4,7,8-HxCDF	73.7	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.0272	5,51	13C-1,2,3,6,7,8-HxCDF	75.0	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0305		13C-2,3,4,6,7,8-HxCDF	78.3	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0417		13C-1,2,3,7,8,9-HxCDF	71.8	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.0457		13C-1,2,3,4,6,7,8-HpCDF	68.6	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.0698		13C-1,2,3,4,7,8,9-HpCDF	66.7	26 - 138	the second of the second se
OCDP .	ND	0,119		13C-OCDF	57.7	17 - 157	
			Merical State Commission and Common Superior Commission	CRS 37CI-2,3,7,8-TCDD	84.1	35 - 197	
TOTALS							
Total TCDD	ND	0.0605					
Total PeGDD	and a survey ND and operate and a survey of the survey of	~ 0.0680					e and and and an experience of all all the
Total HxCDD	ND	0.0819					
Total HpCDD	ND	0.170		W 1061			
Total TCDF	ND	-0.0438		V nV			
Total PeCDF	ND	0.0308					
Total HxCDF	— ND	0.0417					
Total HpCDF		0.0698					

Sample ID: PR1	CSOCLYHD-02B					EPA Me	thod 1613
Project: Lo	ierra Solutions, Inc. ower Passiac River Study CSO/SWO 7-Dec-2013 2:15	Sample Data Matrix: Aqueous Sample Size: 9.66 L		Laboratory Data Lab Sample: 1300838-01 QC Batch: B3L0139 Date Analyzed: 02-Jan-14 23	Date Received: Date Extracted 3:42 Column: ZB-5MS	: 31-Dec-2013	** ORC K. 200 (1980)
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	ND	0.187		IS 13C-2,3,7,8-TCDD	61.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.250		13C-1,2,3,7,8-PeCDD	67.8	25 - 181	
1,2,3,4,7,8-HxCDD	0.606		, G	13C-1,2,3,4,7,8-HxCDD	42.0	32 - 141	
1,2,3,6,7,8-HxCDD	1.79		G	13C-1,2,3,6,7,8-HxCDD	41.3	28 - 130	
1,2,3,7,8,9-HxCDD	1.22		G	13C-1,2,3,7,8,9-HxCDD	41.6	32 - 141	
1,2,3,4,6,7,8-HpCDI	38.5			13C-1,2,3,4,6,7,8-HpCDD	47.8	23 - 140	Section of the sectio
OCDD	338			13C-OCDD	41.4	17 - 157	
2,3,7,8-TCDF	ND	0.154		13C-2,3,7,8-TCDF	59.9	24 - 169	and the second s
1,2,3,7,8-PeCDF	ND	0.224		13C-1,2,3,7,8-PeCDF	63.1	24 - 185	
2,3,4,7,8-PeCDF	0.288		G	13C-2,3,4,7,8-PeCDF	64.9	21 - 178	
1,2,3,4,7,8-HxCDF	1.23		G	13C-1,2,3,4,7,8-HxCDF	53.2	26 - 152	
1,2,3,6,7,8-HxCDF	1.45		G	13C-1,2,3,6,7,8-HxCDF	52.0	26 - 123	
2,3,4,6,7,8-HxCDF	1.10		G	13C-2,3,4,6,7,8-HxCDF	51.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.188		13C-1,2,3,7,8,9-HxCDF	49.6	29 - 147	***************************************
1,2,3,4,6,7,8-HpCDI	17.3			13C-1,2,3,4,6,7,8-HpCDF	50.1	28 - 143	
1,2,3,4,7,8,9-H6CDF		, , , , , , , , , , , , , , , , , , , ,	G	13C-1,2,3,4,7,8,9-HpCDF	50.9	26 - 138	San
OCDE/	42.3			13C-OCDF	44.0	17 - 157	
***************************************			Accessors and ac	CRS 37CI-2,3,7,8-TCDD	114	35 - 197	and the second
TOTALS							
Total TCDD	0.275						
Total PcCDD	was constructed by Q_{Z} in a construction of the construction				A STATE OF THE STA		
Total HxCDD	12.1		A Committee of the Comm	1 Cal 16			
Total HpCDD	74.3			[
Total TCDF	ND	-0.379					
Total PeCDF	3.97				talitati in tali		
Total HxCDF	21.4						
TotalHpCDF	29.0 c estimated detection limit						

Sample ID: PR1	HDDUP-02B					EPA Me	thod 16131
Project: Lo	ierra Solutions, Inc. ower Passiac River Study CSO/SWO 7-Dec-2013 2:15	Sample Data Matrix: Aqueous Sample Size: 9.84 L		Laboratory Data Lab Sample: 1300838-02 QC Batch: B3L0139 Date Analyzed: 02-Jan-14 22:5	Date Received: Date Extracted: 4 Column: ZB-5MS	31-Dec-2013	
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.176		IS 13C-2,3,7,8-TCDD	62.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.504		13C-1,2,3,7,8-PeCDD	59.8	25 - 181	
1,2,3,4,7,8-HxCDD	0.505		/ G	13C-1,2,3,4,7,8-HxCDD	43.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.44		13C-1,2,3,6,7,8-HxCDD	35.6	28 - 130	
1,2,3,7,8,9-HxCDD	1.5		G	13C-1,2,3,7,8,9-HxCDD	39.6	32 - 141	
1,2,3,4,6,7,8-HpCDI	O 30.5			13C-1,2,3,4,6,7,8-HpCDD	47.4	23 - 140	
OCDD	199			13C-OCDD	45.7	17 - 157	
2,3,7,8-TCDF	ND	0.146		13C-2,3,7,8-TCDF	62.2	24 - 169	An army many series
1,2,3,7,8-PeCDF	ND	0.296		13C-1,2,3,7,8-PeCDF	58.7	24 - 185	
2,3,4,7,8-PeCDF	ND	0.306		13C-2,3,4,7,8-PeCDF	62.2	21 - 178	
1,2,3,4,7,8-HxCDF	0.959		G	13C-1,2,3,4,7,8-HxCDF	51.3	26 - 152	
1,2,3,6,7,8-HxCDF	1.08		G	13C-1,2,3,6,7,8-HxCDF	52.2	26 - 123	
2,3,4,6,7,8-HxCDF	0.962		G	13C-2,3,4,6,7,8-HxCDF	50.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.268	The second second second	13C-1,2,3,7,8,9-HxCDF	49.5	29 - 147	
1,2,3,4,6,7,8-HpCDI	13.4			13C-1,2,3,4,6,7,8-HpCDF	48.1	28 - 143	
1,2,3,4,7,8,9-HpCDI	Seed and the seed of the seed		G	13C-1,2,3,4,7,8,9-HpCDF	51.5	26 - 138	and the second s
OCDF/	32.5			13C-OCDF	45.2	17 - 157	
- Marine succession and the second				CRS 37Cl-2,3,7,8-TCDD	82.1	35 - 197	
TOTALS							
Total TCDD	ND	0.136					
-Total PcCDD		, experiments a transfer of 0.890 . The contraction of the contract					and the following the first of
Total HxCDD	7.05	10.8		L GILK III			
Total HpCDD	58.3	The state of the s					
Total TCDF	0.228			1 1			
Total PeCDF	3.16			* **			Section 1
Total HxCDF	14.5	16.9					
Total-HpCDF	c estimated detection limit						

weg.		76	- W W %	PR1	W 7	STATE OF THE STATE	E TES	A PORTO	
80.	4" A 'B'S'S B"S	1 63	8 8 8 4	57828	8	男子 雅 雅			

EPA Method 1613B

Client Data

Name:

Tierra Solutions, Inc.

Project:

Lower Passiac River Study CSO/SWO

Date Collected: 12-Dec-2013 14:20

Sample Data

Matrix: Sample Size: Filter

0.128 g

Laboratory Data

Lab Sample: QC Batch:

1300858-02 B4A0023

Date Received: 13-Dec-2013 10:00 Date Extracted: 06-Jan-2014 13:52

Date Analyzed:

13-Jan-14 07:48 Column: ZB-5MS Analyst: MAS

Analyte	Conc. (pg/g)	DL	EMPG	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	····ND······	9.53			IS	13C-2,3,7,8-TCDD	86.5	25 - 164	
1,2,3,7,8-PeCDD	18.1			_G		13C-1,2,3,7,8-PeCDD	95.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	52.5				13C-1,2,3,4,7,8-HxCDD	74.3	32 - 141	
1,2,3,6,7,8-HxCDD	106			G		13C-1,2,3,6,7,8-HxCDD	76.8	28 - 130	
1,2,3,7,8,9-HxCDD	81.8			G		13C-1,2,3,7,8,9-HxCDD	74.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	3160					13C-1,2,3,4,6,7,8-HpCDD	76.5	23 - 140	
OCDD	43100					13C-OCDD	89.9	17 - 157	
2,3,7,8-TCDF	ND	17.4				13C-2,3,7,8-TCDF	68.1	24 - 169	
1,2,3,7,8-PeCDF	11.1			G		13C-1,2,3,7,8-PeCDF	90.5	24 - 185	
2,3,4,7,8-PeCDF	11.8			G		13C-2,3,4,7,8-PeCDF	93.0	21 - 178	*
1,2,3,4,7,8-HxCDF	53.8			\mathbf{G}		13C-1,2,3,4,7,8-HxCDF	90.4	26 - 152	
1,2,3,6,7,8-HxCDF	61.9			G		13C-1,2,3,6,7,8-HxCDF	85.1	26 - 123	
2,3,4,6,7,8-HxCDF	74.6			G		13C-2,3,4,6,7,8-HxCDF	77.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	23.1				13C-1,2,3,7,8,9-HxCDF	79.2	29 - 147	Secretary of the Comments of
1,2,3,4,6,7,8-HpCDF	< 1110					13C-1,2,3,4,6,7,8-HpCDF	76.2	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND		72.8			13C-1,2,3,4,7,8,9-HpCDF	86.0	26 - 138	
OCDE/	2600					13C-OCDF	87.6	17 - 157	
<u> </u>					CRS	37Cl-2,3,7,8-TCDD	98.4	35 - 197	
TOTALS									
Total TCDD	ND	21.7							
Total PeCDD	15.5					1.6 16			
Total HxCDD	716					7N\ \\\			
Total HpCDD	7610	and the second s	and the state of t						
Total TCDF	ND	The state of the s	20.2						
Total PeCDF	275		361						
Total HxCDF	1170								
Total-HnCDF	2350		2420	minimum in the contract of the					

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

	CSOCLYLP-02B			1			**************************************	thod 1613
Project: Lov	rra Solutions, Inc. wer Passiac River Study CSO/SWO Dec-2013 19:10	Sample Data Matrix: Filter Sample Size: 0.0796 g		Laborator Lab Sampl QC Batch: Date Analy	le: 1300858-01 B4A0023	Demography (1972) programme and	red: 13-Dec-2013 ted: 06-Jan-2014 MS Analyst: MAS	13:52
Analyte	Conc. (pg/g)	DL EMPC	Qualifiers	Label	led Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD			and the second s	IS 13C-2	2,3,7,8-TCDD	86.0	25 - 164	
1,2,3,7,8-PeCDD	ND	42.3		13C-1	1,2,3,7,8-PeCDD	92.0	25 - 181	News Ages Ages
1,2,3,4,7,8-HxCDD	ND	72.0		13C-1	1,2,3,4,7,8-HxCDD	76.1	32 - 141	
1,2,3,6,7,8-HxCDD	156		G	13C-1	1,2,3,6,7,8-HxCDD	77.5	28 - 130	
1,2,3,7,8,9-HxCDD	114		G	13C-1	1,2,3,7,8,9-HxCDD	77.4	32 - 141	
1,2,3,4,6,7,8-HpCDD	4920			13C-1	1,2,3,4,6,7,8-HpCDD	83.5	23 - 140	
OCDD	64000			13C-(OCDD	85.9	17 - 157	
2,3,7,8-TCDF	ND	24.2		13C-2	2,3,7,8-TCDF	68.4	24 - 169	
1,2,3,7,8-PeCDF	ND	29.8		13C-1	1,2,3,7,8-PeCDF	85.3	24 - 185	
2,3,4,7,8-PeCDF	ND	29.6		13C-2	2,3,4,7,8-PeCDF	86.2	21 - 178	
1,2,3,4,7,8-HxCDF	ND	70.7		13C-1	1,2,3,4,7,8-HxCDF	91.4	26 - 152	
1,2,3,6,7,8-HxCDF	88.8		G	13C-1	1,2,3,6,7,8-HxCDF	87.5	26 - 123	
2,3,4,6,7,8-HxCDF	93.4		G	13C-2	2,3,4,6,7,8-HxCDF	83.4	28 - 136	
1,2,3,7,8,9-HxCDF	ND	29.3		13C-1	1,2,3,7,8,9-HxCDF	79.9	29 - 147	the state of the s
1,2,3,4,6,7,8-HpCDE	1520			13C-1	1,2,3,4,6,7,8-HpCDF	77.7	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	96.2		13C-1	1,2,3,4,7,8,9-HpCDF	86.1	26 - 138	
OCDF/	3340			13C-0	OCDF	88.0	17 - 157	
ng filimonia and a second and a				CRS 37CI-	2,3,7,8-TCDD	97.0	35 - 197	
TOTALS								
Total TCDD	ND	32.5						
Fotal PeCDD	response of the consequence and an arrangement of the consequence of t	an in the second	And the second s	2.5.6	V	. Alle San Commence	en de la companya de	
Total HxCDD	983	1050		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\				
Total HpCDD	10100	And the state of t	ist mention concerns the					
Total TCDF	20.9	48.5						
Total PeCDF	378	De la companya de la		N. C.	ing the state of t			
Total HxCDF	<u>1540</u>	1610						
TetalTIpCDF	3140 estimated detection limit	3234		1	r control limit - upper control lim			***************************************

Project 1300858

Sample ID: PR1C	SOCLYLD-02B						EPA Me	thod 1613B
Project: Lov	rra Solutions, Inc. wer Passiac River Study CSO/SWO Dec-2013 19:10	Sample Data Matrix: Aqueous Sample Size: 9.93 L		Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1300859-01 B4A0069 16-Jan-14 21:08	Date Received: Date Extracted: Column: ZB-5MS	14-Jan-2014	15:19
Analyte	Conc. (pg/L)	DL EMPG (Qualifiers	Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	$(x_1, x_2, x_3, x_4, x_4, x_5, x_5, x_5, x_5, x_5, x_5, x_5, x_5$	0,159	namona e e e e e e e e e e e e e e e e e e e	IS 13C-2,3,7,8-T	CDD	57.4	25 - 164	3
1,2,3,7,8-PeCDD	ND	0.290		13C-1,2,3,7,8-	PeCDD	55.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.608		13C-1,2,3,4,7,	8-HxCDD	36.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.691		13C-1,2,3,6,7,	8-HxCDD	37.6	28 - 130	
1,2,3,7,8,9-HxCDD	0.530			13C-1,2,3,7,8,	9-HxCDD	34.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	11.0			13C-1,2,3,4,6,	7,8-HpCDD	34.1	23 - 140	
OCDD	73.2			13C-OCDD		35.1	17 - 157	
2,3,7,8-TCDF	ND	0,174		13C-2,3,7,8-T	CDF	58.2	24 - 169	
1,2,3,7,8-PeCDF	ND	0.335		13C-1,2,3,7,8-	PeCDF	62.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.310		13C-2,3,4,7,8-	PeCDF	65.6	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.398		13C-1,2,3,4,7,	8-HxCDF	43.9	26 - 152	
1,2,3,6,7,8-HxCDF	0.596			13C-1,2,3,6,7,	the state of the s	39.9	26 - 123	
2,3,4,6,7,8-HxCDF	0.531			13C-2,3,4,6,7,	8-HxCDF	38.3	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.310		13C-1,2,3,7,8,	9-HxCDF	34.6	29 - 147	
1,2,3,4,6,7,8-HpCDF	5.33			13C-1,2,3,4,6,	7,8-HpCDF	34.1	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.543		13C-1,2,3,4,7,	8,9-HpCDF	36.8	26 - 138	
OCDE .	10.2			13C-OCDF		35.4	17 - 157	
Managemental				CRS 37CI-2,3,7,8-T	CDD	94.4	35 - 197	
TOTALS								
Total TCDD	ND ().159						
Total PcCDD	$\mathbf{M}_{\mathbf{p}}$	$\mathcal{A}_{\mathcal{A}}$ is a comparison of the contraction o	na en interpretario de la companya grapia.					
Total HxCDD	332							
Total HpCDD	23.0	and the state of t				The second second		
Total TCDF	0.129							
Total PeCDF	0.876	1.37						
Total HxCDF	5.68	6.84						
Total HpCDF	estimated detection limit	and the second contract of the second contrac		.CL-UCL- Lower control lir				

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Sample ID: PR1LD	DDUP-02B							EPA M	ethod 1613F
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO ec-2013 14:20	Sample Matri Samp			Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1300859-02 B4A0069 16-Jan-14 21:57	Date Received: Date Extracted: Column: ZB-5MS	14-Jan-2014	15:19
Analyte C	onc. (pg/L)	DL	EMPC	Qualifiers	Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.188	\$	annanciana de la compositione de	IS 13C-2,3,7,8-T	CDD	69.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.205			13C-1,2,3,7,8	-PeCDD	68.8	25 - 181	
1,2,3,4,7,8-HxCDD	0.535				13C-1,2,3,4,7	,8-HxCDD	43.0	32 - 141	
1,2,3,6,7,8-HxCDD	0.548				13C-1,2,3,6,7	8-HxCDD	44.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND		0.389		13C-1,2,3,7,8	9-HxCDD	41.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	8.92		and the second s		13C-1,2,3,4,6	7,8-HpCDD	42.5	23 - 140	
OCDD	64.7				13C-OCDD		44.8	17 - 157	
2,3,7,8-TCDF	ND	0.139			13C-2,3,7,8-T	CDF	65.4	24 - 169	V 11 × V 1 × V 11 × V 11
1,2,3,7,8-PeCDF	ND	0.264			13C-1,2,3,7,8	-PeCDF	73.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.226			13C-2,3,4,7,8	-PeCDF	77.7	21 - 178	
1,2,3,4,7,8-HxCDF	0.549				13C-1,2,3,4,7	8-HxCDF	53.3	26 - 152	
1,2,3,6,7,8-HxCDF	ND		0.496		13C-1,2,3,6,7	8-HxCDF	48.1	26 - 123	
2,3,4,6,7,8-HxCDF	ND /		0.322		13C-2,3,4,6,7	8-HxCDF	46.5	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.131			13C-1,2,3,7,8.	9-HxCDF	42.8	29 - 147	
1,2,3,4,6,7,8-HpCDP	3.93				13C-1,2,3,4,6	7,8-HpCDF	41.7	28 - 143	
1,2,3,4,7,8,9-HpCDF	0.515				13C-1,2,3,4,7,	8,9-HpCDF	47.0	26 - 138	
OCDE/	7.75				13C-OCDF		45.0	17 - 157	
					CRS 37CI-2,3,7,8-7	rcdd	95.0	35 - 197	Carlotte and processing
TOTALS									
Total TCDD	ND	0.188							
Total PeCDD	\sim	0.306	enna juoja aga anakinin maka kanaka na anaka kiri sin manaka kiri kana anakin masa kiri na sanakin kanakin kan		41 200			and the second of the second of the	
Total HxCDD	5.140		3.08		(1/20)14				
Total HpCDD	19.8	the second se	And the second of the second o) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				
Total TCDF	ND	0.309							
Total PeCDF	0.665		1.31						
Total HxCDF	- 3.95		5.52						
Total HpCDF									
DL - Sample specifc est	timated detection limit				LCL-UCL- Lower control lis	nit - upper control limit			

Sample ID: PR104	WWFB					EPA Met	hod 1613E
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO nr-2014 14:15	Sample Data Matrix: Aqueous Sample Size: 9.88 L		Laboratory Data Lab Sample: 1400027-02 QC Batch: B4A0132 Date Analyzed: 29-Jan-14 15:		ved: 11-Jan-2014 cted: 27-Jan-2014 5MS Analyst: MAS	- Straff Strame
Analyte C	onc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2.3.7.8-TCDD		0.148		IS 13C-2,3,7,8-TCDD	55.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.200	and the second	13C-1,2,3,7,8-PeCDD	54.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.337		13C-1,2,3,4,7,8-HxCDD	43.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.696		13C-1,2,3,6,7,8-HxCDD	46.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.794		13C-1,2,3,7,8,9-HxCDD	41.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.720		13C-1,2,3,4,6,7,8-HpCDD	42.3	23 - 140	
OCDD	0.869		G	13C-OCDD	43.4	17 - 157	
2,3,7,8-TCDF	ND	9.138		13C-2,3,7,8-TCDF	76.5	24 - 169	
1,2,3,7,8-PeCDF	ND	0.212		13C-1,2,3,7,8-PeCDF	61.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.205		13C-2,3,4,7,8-PeCDF	65.0	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.126		13C-1,2,3,4,7,8-HxCDF	49.8	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.136		13C-1,2,3,6,7,8-HxCDF	49.5	26 - 123	
2,3,4,6,7,8-HxCDF	ND /	0.0876		13C-2,3,4,6,7,8-HxCDF	47.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.129		13C-1,2,3,7,8,9-HxCDF	44.9	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.330		13C-1,2,3,4,6,7,8-HpCDF	43.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.146	and the second second	13C-1,2,3,4,7,8,9-HpCDF	49.1	26 - 138	
OCDE	ND	0.435		13C-OCDF	44.6	17 - 157	
				CRS 37C1-2,3,7,8-TCDD	82.4	35 - 197	
TOTALS							
Total TCDD	ND	0.148					
Total PeCDD	ND	0.294		V			
Total HxCDD	ND	0.929	and the second s	CM'S TOUR			
Total HpCDD	ND	1.52		W Calal V			
Total TCDF	ND	0.138					
Total PeCDF	ND	0.452				Security of the security of th	
Total HxCDF	- ND	0.159					
Tetal FlpCDF							
DL - Sample specific est	Carana A Area osta i Elia is			LCL-UCL- Lower control limit - noner control lin			

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Sample ID: PR109	CFFB				EPA M	thod 16131
Project: Low	ra Solutions, Inc. er Passiac River Study CSO/SWO an-2014 15:35	Sample Data Matrix: Aqueous Sample Size: 9.67 L	Laboratory Data Lab Sample: 1400027-03 QC Batch: B4A0132 Date Analyzed: 29-Jan-14 16:23	Date Received Date Extracted 2 Column: ZB-5MS	: 27-Jan-2014	8:13
Analyte C	Conc. (pg/L)	DL EMPC Qua	lifiers Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.146	IS 13C-2,3,7,8-TCDD	54.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.260	13C-1,2,3,7,8-PeCDD	59.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.455	13C-1,2,3,4,7,8-HxCDD	43.2	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.481	13C-1,2,3,6,7,8-HxCDD	44.1	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.521	13C-1,2,3,7,8,9-HxCDD	41.6	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	1.06	13C-1,2,3,4,6,7,8-HpCDD	40.9	23 - 140	
OCDD	ND	0.699	13C-OCDD	41.9	17 - 157	
2,3,7,8-TCDF	ND	0.137	13C-2,3,7,8-TCDF	75.7	24 - 169	
1,2,3,7,8-PeCDF	ND	0.242	13C-1,2,3,7,8-PeCDF	67.0	24 - 185	
2,3,4,7,8-PeCDF	ND	0.221	13C-2,3,4,7,8-PeCDF	69.5	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.123	13C-1,2,3,4,7,8-HxCDF	49.6	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.133	13C-1,2,3,6,7,8-HxCDF	48.0	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.0684	13C-2,3,4,6,7,8-HxCDF	45.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0973	13C-1,2,3,7,8,9-HxCDF	44.2	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.232	13C-1,2,3,4,6,7,8-HpCDF	41.9	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.146	13C-1,2,3,4,7,8,9-HpCDF	48.1	26 - 138	
OCDE/	ND	0.425	13C-OCDF	43.4	17 - 157	
Account institutions in a security of the secu			CRS 37CI-2,3,7,8-TCDD	82.0	35 - 197	
TOTALS						
Total TCDD	ND	0.146				
Total PeCDD	ussaaton estate ND et viriosis is en in en	0.423				
Total HxCDD	ND	0.678				
Total HpCDD	ND	1.06	1 V 12 V			
Total TCDF	ND	0.137				
Total PeCDF	ND	0.497			The same of the same of	
Total HxCDF	ND	0.157				
Total HpCDF DL - Sample specific es		0.240 consequence because the consequence of the	LCL-UCL- Lower control limit - upper control limi			

Project 1400027

Sample ID: PR110	CFRB	эр нь эр эхэх хүр охол дэв уудаа харуун харуун хүр эхэг хүр хүр хүр харуу хар		and documented the first the control of the control	idaalan kan noonaa ilaan kan ja gilaan ee inta oo ka ka maran da Arman in ta ah a	EPA Me	thod 16131
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO n-2014 8:45	Sample Data Matrix: Aqueous Sample Size: 9.77 L		Laboratory Data Lab Sample: 1400027-01 QC Batch: B4A0132 Date Analyzed: 29-Jan-14 14:45	Date Received Date Extracted Column: ZB-5M	i: 27-Jan-2014	8:13
Analyte C	onc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD			normania de la compania de la compa	IS 13C-2,3,7,8-TCDD	78.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.266	and the second second	13C-1,2,3,7,8-PeCDD	74.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.212		13C-1,2,3,4,7,8-HxCDD	55.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.405		13C-1,2,3,6,7,8-HxCDD	56.4	28 - 130	and all the second
1.2,3,7,8,9-HxCDD	ND	0.435		13C-1,2,3,7,8,9-HxCDD	52.5	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.374		13C-1,2,3,4,6,7,8-HpCDD	51.2	23 - 140	
OCDD	138		G	13C-OCDD	49.6	17 - 157	
2,3,7,8-TCDF	ND	0:111		13C-2,3,7,8-TCDF	93.5	24 - 169	en and a second and an experience of a
1,2,3,7,8-PeCDF	ND	0.205		13C-1,2,3,7,8-PeCDF	75.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.194		13C-2,3,4,7,8-PeCDF	79.6	21 - 178	energy and beautiful
1,2,3,4,7,8-HxCDF	ND	0.243		13C-1,2,3,4,7,8-HxCDF	61.8	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.132		13C-1,2,3,6,7,8-HxCDF	60.2	26 - 123	The body of the consequence of
2,3,4,6,7,8-HxCDF	ND	0.161		13C-2,3,4,6,7,8-HxCDF	59.0	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.240		13C-1,2,3,7,8,9-HxCDF	56.1	29 - 147	
1,2,3,4,6,7,8-HpCDF	1.02		G	13C-1,2,3,4,6,7,8-HpCDF	53.6	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.282	And the age of the San San San San	13C-1,2,3,4,7,8,9-HpCDF	57.0	26 - 138	the second s
OCDF	3.73		Ğ	13C-OCDF	51.8	17 - 157	
				CRS 37CI-2,3,7,8-TCDD	91.4	35 - 197	
TOTALS							
Total TCDD	0.387						
Total PeCDD	in the contract ${ m JM}$ is the second contract of the contr	0.266			*		
Total HxCDD	ND	0.371		1/1/2			
Total HpCDD	0.461	0.836					Section 1 Section 1
Total TCDF	ND	0.205					
Total PeCDF	ND	0.313	San		ette sakas iki laiki.	e for the second	
Total HxCDF	ND	0.381					
Total HpCDF DL - Sample specife est				LCL-UCL- Lower control limit - upper control limit			

Sample ID: PRICSO	CLYWW-01C							ata era kutoko bijanjoh opogo je da darak kon kuraja ba ya kutoko subunos subunova u se, este esi esi kutoko e	EPA Mei	hod 1613]
Project: Lower l	Solutions, Inc. Passiac River Study CSO/SWO -2014 18:10	Sample Da Matrix: Sample S	Aqueous		Lab QC	boratory Data Sample: Batch: te Analyzed;	1400326-01 B4E0031 15-May-14 23:5	Date Received: Date Extracted: 4 Column: ZB-5M5	11-May-2014	19:25
Analyte Con	c. (pg/L)	DL	EMPC	Qualifiers		Labeled Stand	lard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	in MD in the contract of the c		0.0848		IS	13C-2,3,7,8-T	CDD	63.1	25 - 164	
1,2,3,7,8-PeCDD	0.425			_8_		13C-1,2,3,7,8-	PeCDD	48.9	25 - 181	
1,2,3,4,7,8-HxCDD	0.914			/ G		13C-1,2,3,4,7,	8-HxCDD	55.8	32 - 141	
1,2,3,6,7,8-HxCDD	2.58					13C-1,2,3,6,7,	8-HxCDD	55.7	28 - 130	
1,2,3,7,8,9-HxCDD	2.01			G		13C-1,2,3,7,8,	9-HxCDD	55.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	81.5					13C-1,2,3,4,6,	7,8-HpCDD	52.6	23 - 140	
OCDD	1060					13C-OCDD		53.4	17 - 157	
2,3,7,8-TCDF	ND		0.244			13C-2,3,7,8-T	CDF	65.0	24 - 169	
1,2,3,7,8-PeCDF	0.304			G		13C-1,2,3,7,8-	PeCDF	53.0	24 - 185	
2,3,4,7,8-PeCDF	0.850			G		13C-2,3,4,7,8-	PeCDF	53.2	21 - 178	
1,2,3,4,7,8-HxCDF	1.80			G		13C-1,2,3,4,7,	8-HxCDF	55.0	26 - 152	
1,2,3,6,7,8-HxCDF	1.81			G		13C-1,2,3,6,7,	8-HxCDF	51.5	26 - 123	
2,3,4,6,7,8-HxCDF	1.75			G		13C-2,3,4,6,7,	8-HxCDF	55.9	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.131				13C-1,2,3,7,8,	9-HxCDF	58.9	29 - 147	
1,2,3,4,6,7,8-HpCDF	29.1					13C-1,2,3,4,6,	7,8-HpCDF	58.7	28 - 143	
1,2,3,4,7,8,9-HpCDF	2.05		the annual of the control of the Con	G		13C-1,2,3,4,7,	formal of a control of the control of the control	58.6	26 - 138	
OCDF /	53.7					13C-OCDF		52.3	17 - 157	
Maria de la compania					CRS	37Cl-2,3,7,8-T	CDD	83.8	35 - 197	
TOTALS										k
Total TCDD	0.393		0.726							
Total PcCDD	4,69			The second secon		X lile	A STATE OF THE STA		in the second se	
Total HxCDD	20.2				レグ	1291				
Total HpCDD	169	and the second s	and the second s			/				
Total TCDF	2.92	and the second s	4.60							
Total PeCDF	13.6		13.7							
Total HxCDF	31.0									
Total HpCDF DL - Sample specife estim	60,4			CONTRACTOR OF THE PROPERTY OF				:		

Sample ID: PR1WV	WDUP-01C			nieni je povi svijeje od nestale prometri kod naziveno nesta na iniciali	n kandana kada punimum kenapana kanapan menindirikan hiji peri nanan menungun puningun nangun pengun ngaran p			EPA Me	thod 16131
Project: Lowe	Solutions, Inc. r Passiac River Study CSO/SWO or-2014 18:10	Sample Da Matrix: Sample S	Aqueous		Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1400326-02 B4E0031 15-May-14 23:0	Date Received: Date Extracted: 5 Column: ZB-5M!	11-May-2014	19:25
Analyte Co	onc. (pg/L)	DL I	EMPC	Qualifiers	Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND		0.0530	·····	IS 13C-2,3,7,8-T	CDD	65.4	25 - 164	
1,2,3,7,8-PeCDD	0.262			_G	13C+1,2,3,7,8	-PeCDD	51.7	25 - 181	
1,2,3,4,7,8-HxCDD	0.681			∕′ G	13C-1,2,3,4,7	,8-HxCDD	58.5	32 - 141	
1,2,3,6,7,8-HxCDD	1.81			G	13C-1,2,3,6,7	,8-HxCDD	59.6	28 - 130	
1,2,3,7,8,9-HxCDD	130			G	13C-1,2,3,7,8	,9-HxCDD	58.2	32 - 141	
1,2,3,4,6,7,8-HpCDD	71.1	Market			13C-1,2,3,4,6	,7,8-HpCDD	54.1	23 - 140	
OCDD	821				13C-OCDD		53.6	17 - 157	
2,3,7,8-TCDF	ND		0.133		13C-2,3,7,8-T	CDF	64.0	24 - 169	
1,2,3,7,8-PeCDF	ND		0.157		13C-1,2,3,7,8	-PeCDF	55.3	24 - 185	
2,3,4,7,8-PeCDF	0.438			G	13C-2,3,4,7,8	-PeCDF	55.6	21 - 178	
1,2,3,4,7,8-HxCDF	1.34			G	13C-1,2,3,4,7	,8-HxCDF	55.1	26 - 152	
1,2,3,6,7,8-HxCDF	1.32			G	13C-1,2,3,6,7	,8-HxCDF	53.4	26 - 123	The state of the s
2,3,4,6,7,8-HxCDF	1.09			G	13C-2,3,4,6,7	,8-HxCDF	57.8	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0906			13C-1,2,3,7,8	,9-HxCDF	59.5	29 - 147	and the count the scarlet than
1,2,3,4,6,7,8-HpCDF	20.2				13C-1,2,3,4,6	,7,8-HpCDF	58.2	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.47			G	13C-1,2,3,4,7	A Control of the Cont	60.1	26 - 138	and the second of the second
OCDE/	38.0				13C-OCDF		52.1	17 - 157	
		titionin manta destinationin distributionin managed in a suppose		nament in terminal international design.	CRS 37C1-2,3,7,8-7	ГCDD	88.0	35 - 197	
TOTALS							·		
Total TCDD	ND		0.272		A16				
-Total PeCDD					gy in				
Total HxCDD	14.2				2/26/16				
Total HpCDD	144	The state of the s							
Total TCDF	1.33		2.17						
Total PeCDF	7.46	e de la companya de l	7.62			and the many and the			
Total HxCDF	- 20.7								
Total HpCDF DL - Sample specife esti	43.1								

Sample ID: PRICS	SOCLYHP-01C		aydingaalaalayeenaanaanaanaanaanaanaanaanaanaanaanaana				EPA Me	hod 1613B
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO pr-2014 18:10	1	olid .9 g .2	Laboratory Data Lab Sample: QC Batch: Date Analyzed:		Date Received: Date Extracted: 19 Column: ZB-5M: 29 Column: SP-2331	07-May-2014 S Analyst: MAS	13:42
Analyte C	one. (pg/g)	DL EMPC	Qualifiers	Labeled Stan		%R	LCL-UCL	Qualifiers
-2,3,7,8-TCDD	a_{ij}			IS 13C-2,3,7,8-T	CDD	71.1	25 - 164	
1,2,3,7,8-PeCDD	4.56			13C-1,2,3,7,8	-PeCDD	71.1	25 - 181	
1,2,3,4,7,8-HxCDD	9.01			13C-1,2,3,4,7	,8-HxCDD	68.3	32 - 141	
1,2,3,6,7,8-HxCDD	24.4			13C-1,2,3,6,7	,8-HxCDD	75.3	28 - 130	
1,2,3,7,8,9-HxCDD	17.5			13C-1,2,3,7,8	,9-HxCDD	73.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	746			13C-1,2,3,4,6	,7,8-HpCDD	68.3	23 - 140	15. 50. 50.000
OCDD	12000		\mathbf{p}	13C-OCDD		67.1	17 - 157	D
2,3,7,8-TCDF	3.85			13C-2,3,7,8-T	CDF	64.6	24 - 169	
1,2,3,7,8-PeCDF	3.53			13C-1,2,3,7,8	-PeCDF	78.5	24 - 185	
2,3,4,7,8-PeCDF	4.77			13C-2,3,4,7,8	control of a factor of the second of the sec	72.5	21 - 178	
1,2,3,4,7,8-HxCDF	14.9			13C-1,2,3,4,7	.8-HxCDF	79.6	26 - 152	
1,2,3,6,7,8-HxCDF	13.9			13C-1,2,3,6,7	,8-HxCDF	73.3	26 - 123	and the second of the second
2,3,4,6,7,8-HxCDF	9.96			13C-2,3,4,6,7	8-HxCDF	74.3	28 - 136	
1,2,3,7,8,9-HxCDF	MD	0.267		13C-1,2,3,7,8	9-HxCDF	77.7	29 - 147	
1,2,3,4,6,7,8-HpCDE	253			13C-1,2,3,4,6		74.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	13.8		distribution of the manifest o	13C-1,2,3,4,7	article and a second second for the first of the control of the co	81.0	26 - 138	
OCDF/	488			13C-OCDF		77.9	17 - 157	
A Company of the Comp				CRS 37Cl-2,3,7,8-	TCDD	71.7	35 - 197	
TOTALS		natura esta confesio periodo investria esta esta esta esta confesio de desta esta esta esta esta esta esta est Esta esta esta esta esta esta esta esta e						
Total TCDD	18.1	19.4	7.9					
Total PeCDD	46.1					man approximation of the		a service and the service and
Total HxCDD	206		The state of the s	$\mathcal{L}^{\prime\prime}$	\\V			
Total HpCDD	1740	and the state of t	erio de la companya del companya de la companya de la companya del companya de la companya del la companya del la companya de	1/2		and the residue of the state of the	and the first section of the contract of	Sand Comment State Section 644
Total TCDF	85.5	88.2						
Total PeCDF	174					A CONTRACT OF THE PARTY OF THE		
Total HxCDF								
Total-HpCDF						and the second s		
DL - Sample specifc es	timated detection limit			LCL-UCL- Lower control lis	mit _ unnar control limit	ennetició in a para le de company à plante en entre l'actività de l'acti	***************************************	***************************************

DL - Sample specife estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Sample ID: PRIHP	PDUP-01C					o o o o o o o o o o o o o o o o o o o		EPA Mei	hod 16131
Project: Lowe	a Solutions, Inc. er Passiac River Study CSO/SWO pr-2014 18:10	Sample Data Matrix: Sample Size: % Solids:	Solid 19.2 g 52.0		Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1400328-02 B4E0020 09-May-14 15:3	Date Received: Date Extracted: 1 Column: ZB-5M: 8 Column: SP-233	S Analyst: MAS	13:42
Analyte C	onc. (pg/g)	DL EM		Qualifiers	Labeled Sta		%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD			28		IS 13C-2,3,7,8-	TCDD	80.5	25 - 164	
1,2,3,7,8-PeCDD	4.69				13C-1,2,3,7,	8-PeCDD	83.9	25 - 181	
1,2,3,4,7,8-HxCDD	9.24				13C-1,2,3,4,	7,8-HxCDD	77.0	32 - 141	
1,2,3,6,7,8-HxCDD	25.0				13C-1,2,3,6,	7,8-HxCDD	78.4	28 - 130	
1,2,3,7,8,9-HxCDD	21.0				13C-1,2,3,7,	8,9-HxCDD	78.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	818				13C-1,2,3,4,	6,7,8-HpCDD	71.7	23 - 140	
OCDD	11600			D	13C-OCDD		79.8	17 - 157	D
2,3,7,8-TCDF	3.60				13C-2,3,7,8-	TCDF	72.2	24 - 169	A STATE OF THE STA
1,2,3,7,8-PeCDF	3.22				13C-1,2,3,7,	Many the factor and the first section is	97.5	24 - 185	
2,3,4,7,8-PeCDF	421	and the second of second as a second of second second		angga man ti dan an an ang aga at tibun 1995 man ang tiggga gabanah	13C-2,3,4,7,		87.8	21 - 178	
1,2,3,4,7,8-HxCDF	14.4				13C-1,2,3,4,		94.8	26 - 152	
1,2,3,6,7,8-HxCDF	14.2				13C-1,2,3,6,	Additional and service that a final and assessment and	82.1	26 - 123	
2,3,4,6,7,8-HxCDF	10.5				13C-2,3,4,6,	NGC and but a company that is a first of the	77.5	28 - 136	
1,2,3,7,8,9-HxCDF	₩Ď	0.279		e parentare per per estrator estrator de la colonida de la colonida de la colonida de la colonida de la colonid	13C-1,2,3,7,		79.7	29 - 147	
1,2,3,4,6,7,8-HpCDF	247					6,7,8-HpCDF	80.8	28 - 143	
1,2,3,4,7,8,9-ИрCDF	14.4	and the second second second second second		migration and the second of the second s	Application of the control of the control of the control of	7,8,9-HpCDF	84.6	26 - 138	
OCDE	469				13C-OCDF		83.5	17 - 157	
					CRS 37CI-2,3,7,8	-TCDD	83.0	35 - 197	
TOTALS									
Total TCDD	14.1	1	i.0						
-Total PeCDD-	assistantina del 3 de 1 maistra esta con conservamente de constitución de conservamente aconservamente de conse				116		The Committee of the Co	and the second s	
Total HxCDD	207		and the second second	and the second s	EX 1501				
Total HpCDD	1920				7.V		The second of th	, and the second of the second	in the said Sangara Marabana ann Said an
Total TCDF	75.6	71	1.0						
Total PeCDF	152	1	53						
Total HxCDF	287								
Total-HpCDE	5.16						and the second of the second o	and the second s	The state of the s
	timated detection limit		***************************************	· ////////////////////////////////////	LCL-UCL- Lower control	limit - noner control limit			Ministration of the second of

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Client Data		Sample D	lata		Laboratory Data				
Name: T	ierra Solutions, Inc.	Matrix:	Aqueous		Lab Sample:	1400327-01	Date Received:	02-May-2014	9:30
Project: L	ower Passiac River Study CSO/SWO	Sample	Size: 9.74 L		QC Batch:	B4E0049	Date Extracted:	15-May-2014	8:44
Date Collected: 30	0-Apr-2014 18:10				Date Analyzed:	19-May-14 17:11	Column: ZB-5MS	Analyst: MAS	
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Stan	dard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	and the second s	0.123	Westerstein and the second		IS 13C-2,3,7,8-T	CDD	58.6	25 - 164	
1,2,3,7,8-PeCDD	ND		0.187		13C-1,2,3,7,8	PeCDD	42.7	25 - 181	
1,2,3,4,7,8-HxCDD	0.575			< G	13C-1,2,3,4,7,	8-HxCDD	45.7	32 - 141	
1,2,3,6,7,8-HxCDD	1.42			G	13C-1,2,3,6,7,	8-HxCDD	48.1	28 - 130	
1,2,3,7,8,9-HxCDD	1.04			\mathbf{G}	13C-1,2,3,7,8,	9-HxCDD	45.5	32 - 141	
1,2,3,4,6,7,8-HpCDI	D 31.3				13C-1,2,3,4,6,	7,8-HpCDD	42.2	23 - 140	- 1 1111
OCDD	226				13C-OCDD		40.8	17 - 157	
2,3,7,8-TCDF	0.0775			G	13C-2,3,7,8-T	CDF	62.2	24 - 169	
1,2,3,7,8-PeCDF	0.131			\mathbf{G}	13C-1,2,3,7,8-	PeCDF	47.6	24 - 185	
2,3,4,7,8-PeCDF	ND		0.238		13C-2,3,4,7,8-	PeCDF	46.9	21 - 178	
1,2,3,4,7,8-HxCDF	0,976			G	13C-1,2,3,4,7,	8-HxCDF	45.9	26 - 152	
1,2,3,6,7,8-HxCDF	1.07			G	13C-1,2,3,6,7,	8-HxCDF	43.9	26 - 123	
2,3,4,6,7,8-HxCDF	0.924			G	13C-2,3,4,6,7,	8-HxCDF	45.7	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.244			13C-1,2,3,7,8,	9-HxCDF	48.0	29 - 147	
1,2,3,4,6,7,8-HpCDI	F 15.3				13C-1,2,3,4,6,	7,8-HpCDF	46.8	28 - 143	
1.2,3,4,7,8,9-HpCDI	F ND		1.22		13C-1,2,3,4,7,	8,9-HpCDF	47.1	26 - 138	
OCDF /	26.8				13C-OCDF		40.5	17 - 157	
					CRS 37CI-2,3,7,8-7	CDD	96.7	35 - 197	
TOTALS									
Total TCDD	ND	0.134							
-Total-PeCDD			0.978			an a	and the second	er og granne og skale skale	
Total HxCDD	8.91		9.23	and the state of t	(1/1/10)				
Total HpCDD	57.7	and the second second second second second	and the second s		Y (#*)	Sulma i Sentingui (per la como	na ngarana na pilipangan kalang	and the second second	
Total TCDF	0.387		0.668		<i>(''</i>				
Total PeCDF	3.16	ng mgagaran New New	4.71		sasana sa ana ana ana ana ana ana			gagaga ka Swalana da Ka	was a financia
Total HxCDF									
Total-HpCDF	30.9 fc estimated detection limit		32.2			mit - upper control limit			

Sample ID: PR1HD	DUP-01C					EPA Met	hod 1613
Project: Lowe	a Solutions, Inc. r Passiac River Study CSO/SWO pr-2014 18:10	Sample Data Matrix: Aqueous Sample Size: 10.0 L		Laboratory Data Lab Sample: 1400327-02 QC Batch: B4E0049 Date Analyzed: 19-May-14 16:	Date Received: Date Extracted: 22 Column: ZB-5M	15-May-2014	8:44
Analyte Co	one. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2.3,7,8-TCDD	УD	0.168	CONTRACTOR OF THE PROPERTY OF	IS 13C-2,3,7,8-TCDD	65.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.104		13C-1,2,3,7,8-PeCDD	51.0	25 - 181	
1,2,3,4,7,8-HxCDD	0.448		G	13C-1,2,3,4,7,8-HxCDD	53.1	32 - 141	
1,2,3,6,7,8-HxCDD	1.18		G	13C-1,2,3,6,7,8-HxCDD	56.5	28 - 130	
1,2,3,7,8,9-HxCDD	0.834		G	13C-1,2,3,7,8,9-HxCDD	54.4	32 - 141	
1,2,3,4,6,7,8-HpCDD	29.3			13C-1,2,3,4,6,7,8-HpCDD	49.2	23 - 140	
OCDD	269			13C-OCDD	49.3	17 - 157	
2,3,7,8-TCDF	0.0948		G	13C-2,3,7,8-TCDF	68.4	24 - 169	
1,2,3,7,8-PeCDF	ND	0.235		13C-1,2,3,7,8-PeCDF	55.3	24 - 185	
2,3,4,7,8-PeCDF	ND	0.200		13C-2,3,4,7,8-PeCDF	56.7	21 - 178	
1,2,3,4,7,8-HxCDF	0.893		G	13C-1,2,3,4,7,8-HxCDF	56.2	26 - 152	
1,2,3,6,7,8-HxCDF	0.885		G	13C-1,2,3,6,7,8-HxCDF	51.3	26 - 123	
2,3,4,6,7,8-HxCDF	0.793		G	13C-2,3,4,6,7,8-HxCDF	55.4	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.101		13C-1,2,3,7,8,9-HxCDF	57.4	29 - 147	
1,2,3,4,6,7,8-HpCDF	13.0			13C-1,2,3,4,6,7,8-HpCDF	55.5	28 - 143	
1,2,3,4,7,8,9-HpCDF	1.01		G	13C-1,2,3,4,7,8,9-HpCDF	56.2	26 - 138	
OCDF/	23.1			13C-OCDF	48.3	17 - 157	
***************************************				CRS 37CI-2,3,7,8-TCDD	96.9	35 - 197	
TOTALS							
Total TCDD	ND	0.0684					
Tetal-PeCDD	$- \frac{1}{2} \left(\frac{1}{2} \right) \right) \right) \right)}{1} \right) \right)} \right)}{1} \right)} \right)} \right)} \right)} \right)} \right)} \right)} \right)} \right)} \right)$						
Total HxCDD	8.04		are productive and a second second	1 × 1 × 1 × 1			
Total HpCDD	55.5	and the second s					
Total TCDF	0.306	0.686		× 0/			
Total PeCDF	2.36	3.91					
Total HxCDF	-14.0	14.1					
Zetal HpCDF				~			

Sample ID: PRICSO	OCLYLP-01C						FPAM	ethod 16131
Project: Lower	Solutions, Inc. r Passiac River Study CSO/SWO ay-2014 15:05	Sample Data Matrix: Filter Sample Size: 0.0773 g		Laborat Lab Sam QC Bate Date An	h: B4E0032	Date Rece Date Extra 16 Column: ZI	A CONTRACTOR OF SECURITY OF SE	4 14:00
Analyte Co	nc. (pg/g)	DLEMPC	Qualifiers	Lat	seled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8×FCDD	and the second s	on de servicio de la companie de la		IS 13C	-2,3,7,8-TCDD	86.5	25 - 164	
1.2,3,7.8-PeCDD	24.4		G	13C	3-1,2,3,7,8-PeCDD	73.2	25 - 181	
1,2,3,4,7,8-HxCDD	47.7		< G	13C	7-1,2,3,4,7,8-HxCDD	84.5	32 - 141	
1,2,3,6,7,8-HxCDD	135		G	130	-1,2,3,6,7,8-HxCDD	87.5	28 - 130	
1,2,3,7,8,9-HxCDD	105		G	130	2-1,2,3,7,8,9-HxCDD	84.8	32 - 141	A. 1
1,2,3,4,6,7,8-HpCDD	3750			130	5-1,2,3,4,6,7,8-HpCDD	81.5	23 - 140	
OCDD	45500			3 .	-OCDD	82.3	17 - 157	Santages (1)
2,3,7,8-TCDF	18.9		G	\$. ' · · · · · · · · · · · · · · · · · ·	'-2,3,7,8-TCDF	86.8	24 - 169	
1,2,3,7,8-PeCDF	12.6		G		'-1,2,3,7,8-PeCDF	80.5	24 - 185	
2,3,4,7,8-PeCDF	43.6		G	1	-2,3.4,7,8-PeCDF	74.7	21 - 178	
1,2,3,4,7,8-HxCDF	80.8		G		-1,2,3,4,7,8-HxCDF	83.1	26 - 152	
1,2,3,6,7,8-HxCDF	92.3		G		-1,2,3,6,7,8-HxCDF	77.6	26 - 123	
2,3,4,6,7,8-HxCDF	95.9		G		-2,3,4,6,7,8-HxCDF	82.4	28 - 136	
1,2,3,7,8,9-HxCDF		7.2			-1,2,3,7,8,9-HxCDF	88.4	29 - 147	
1.2,3,4,6,7.8-HpCDF	1760			1	-1,2,3,4,6,7,8-HpCDF	90.8	28 - 143	
1,2,3,4,7.8,9-HpCDF	105		G		-1,2,3,4,7,8,9-HpCDF	90.5	26 - 138	
OCDE	3280				-OCDF	80.8	17 - 157	
VVVP	A CONTROL OF THE STATE OF THE S		Contribution and Contribution (Contribution)		:1-2,3,7.8-TCDD	86.6	35 - 197	
TOTALS								
Total TCDD	17.5	26.4						
Total PeCDD	isaasineeli (ja Gamminista minista kasuumin oo ka ka marka ka marka ka marka ka marka ka marka ka marka ka mar	en de la company de la comp						
Total HxCDD	903	946						
Total HpCDD	7410							
Total TCDF	183							
Total PeCDF	695	718		A V				
Total HxCDF	1790							
Total-HoCDF			terrepresentation principal experience for the					
	mated detection limit			THE TOT THE	ver control limit - upper control limit			A CONTRACTOR OF THE PARTY OF TH

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

Sample ID: PRILPDUP-O1C					EPA Mei	hod 1613)
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiac River Study CSO/S Date Collected: 05-May-2014 17:40	Sample Data Matrix: Filter Sample Size: 0.0808 g		Laboratory Data Lab Sample: 1400337-02 QC Batch: B4E0032 Date Analyzed: 15-May-14 2	Date Recei Date Extra 1:27 Column: ZB	and the second s	14:00
Analyte Conc. (pg/g)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
2;3;7;8-TCDDND	ti describirante de la companya del la companya de la companya de la companya del la companya de	one and the second second	IS 13C-2,3,7,8-TCDD	85.2	25 - 164	
1,2,3,7,8-PeCDD 59.3		G	13C-1,2,3,7,8-PeCDD	76.2	25 - 181	
1,2,3,4,7,8-HxCDD 91.2		G	13C-1,2,3,4,7,8-HxCDD	87.5	32 - 141	
1,2,3,6,7,8-HxCDD 219		G	13C-1,2,3,6,7,8-HxCDD	91.1	28 - 130	
1,2,3,7,8,9-HxCDD 238		G	13C-1,2,3,7,8,9-HxCDD	88.5	32 - 141	
1,2,3,4,6,7,8-HpCDD 7400			13C-1,2,3,4,6,7,8-HpCDD	85.0	23 - 140	
OCDD 109000			13C-OCDD	85.3	17 - 157	
2,3,7,8-TCDF ND	20.6		13C-2,3,7,8-TCDF	85.0	24 - 169	
1,2,3,7,8-PeCDF 18.3		G	13C-1,2,3,7,8-PeCDF	80.3	24 - 185	
2,3,4,7,8-PeCDF 56.9		G	13C-2,3,4,7,8-PeCDF	79.0	21 - 178	
1,2,3,4,7,8-HxCDF 93.4		G	13C-1,2,3,4,7,8-HxCDF	87.9	26 - 152	
1,2,3,6,7,8-HxCDF 116		G	13C-1,2,3,6,7,8-HxCDF	81.7	26 - 123	
2,3,4,6,7,8-HxCDF 118		G	13C-2,3,4,6,7,8-HxCDF	86.7	28 - 136	
1,2,3,7,8,9-HxCDF /19,4		G	13C-1,2,3,7,8,9-HxCDF	94.1	29 - 147	
1,2,3,4,6,7,8-HpCDF 2230			13C-1,2,3,4,6,7,8-HpCDF	90.7	28 - 143	
1,2,3,4,7,8,9-HpCDF 123		G	13C-1,2,3,4,7,8,9-HpCDF	96.8	26 - 138	
OCDE 4070			13C-OCDF	83.5	17 - 157	
		Miller Market and and another control of the	CRS 37CI-2,3,7,8-TCDD	87.7	35 - 197	
TOTALS						
Total TCDD 52.9	68.9					
Total PeCDD	and the second second sections and the second secon					
Total HxCDD 1920						
Total HpCDD 17700	and the second s			S		
Total TCDF 236	322			and the second		
Total PeCDF 868						
Total HxCDF 2150						
Fotal FIPEDA		epitement of the section of the section of				

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit

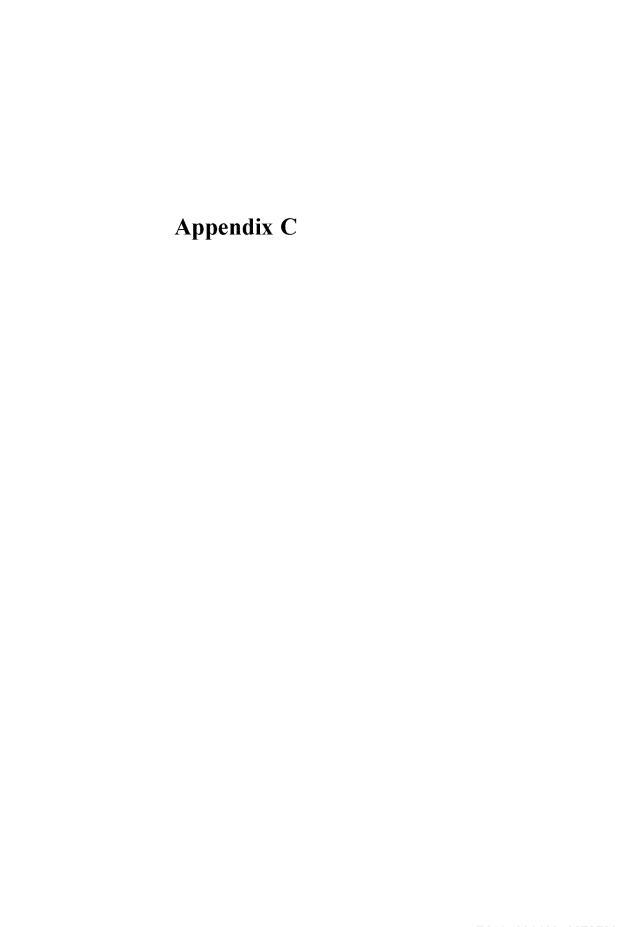
Sample ID: PR105	ILPEB		EPA Method 16
Project: Low	ra Solutions, Inc. rer Passiac River Study CSO/SWO May-2014 16:30	Sample Data Matrix: Filter Sample Size: 1.00 g	Laboratory Data Lab Sample: 1400337-03 Date Received: 07-May-2014 8:50 QC Batch: B4E0032 Date Extracted: 12-May-2014 14:00 Date Analyzed: 15-May-14 20:38 Column: ZB-5MS Analyst: MAS
Analyte C	Conc. (pg/g.)	DL EMPC Qual	fiers Labeled Standard %R LCL-UCL Qualif
2.3.7.8.TCDD	and the second s	0.786	IS 13C-2,3,7,8-TCDD 79.4 25 - 164
1,2,3,7,8-PeCDD	ND	0.867	13C-1,2,3,7,8-PeCDD 73.0 25 - 181
1,2,3,4,7,8-HxCDD	ND	0.746	13C-1,2,3,4,7,8-HxCDD 85.0 32 - 141
1,2,3,6,7,8-HxCDD	ND	0.792	13C-1,2,3,6,7,8-HxCDD 92.7 28 - 130
1,2,3,7,8,9-HxCDD	ND	0.800	13C-1,2,3,7,8,9-HxCDD 89.2 32 - 141
1,2,3,4,6,7,8-HpCDD	ND	1:14	13C-1,2,3,4,6,7,8-HpCDD 83.7 23 - 140
OCDD	ND	3.66	13C-OCDD 84.1 17 - 157
2,3,7,8-TCDF	ND	0.678	13C-2,3,7,8-TCDF 75.8 24 - 169
1,2,3,7,8-PeCDF	ND /	0,739	13C-1,2,3,7.8-PeCDF 75.3 24 - 185
2,3,4,7,8-PeCDF	ND	0.503	13C-2,3,4,7,8-PeCDF 74.4 21 - 178
1,2,3,4,7,8-HxCDF	ND /	0.781	13C-1,2,3,4,7,8-HxCDF 85.2 26 - 152
1,2,3,6,7,8-HxCDF	ND	0.219	13C-1,2,3,6,7,8-HxCDF 82.5 26 - 123
2,3,4,6,7,8-HxCDF	ND-	0:227	13C-2,3,4,6,7,8-HxCDF 85.3 28 - 136
1,2,3,7,8,9-HxCDF	ND	0.321	13C-1,2,3,7,8,9-HxCDF 91.7 29 - 147
1,2,3,4,6,7,8-HpGDF	ND	0.524	13C-1.2,3,4,6,7,8-HpCDF 89.9 28 - 143
1,2,3,4,7,8.9-HpCDF	ND	0.272	13C-1,2,3,4,7,8,9-HpCDF 93.7 26 - 138
OCDF	ND	1.05	13C-OCDF 81.5 17 - 157
			CRS 37CI-2,3,7,8-TCDD 84.8 35 - 197
TOTALS			
Total TCDD	ND	0.786	
Total PeCDD	$(x_1, x_2, x_3) = \int_{\mathbb{R}^3} \int_{\mathbb{R}^3} dx dx dx dx dx dx dx dx $	o constituti de la compania de la c	
Total HxCDD	ND	1.29	
Total HpCDD	ND	2.61	
Total TCDF	ND	0.678	
Total PeCDF	NL	0.751	
Total HxCDE	ND	0.857	
Total HpCDF DL - Sample specific es	$f_{ij}(x_i,x_j) = \int_{\mathbb{R}^n} \int_{\mathbb{R}^n} dx_i dx_i dx_i dx_i dx_j dx_j dx_j dx_j dx_j dx_j dx_j dx_j$		LCL-UCL- Lower control limit - upper control limit

Sample ID: PRICSOCLYLD-01				EPA Method 161
Client Data Name: Tierra Solutions, Inc. Project: Lower Passiac River S Date Collected: 05-May-2014 15:05	Sample Data Matrix: Aqueous tudy CSO/SWO Sample Size: 9.90 L.	Laborator Lab Sampl QC Batch: Date Analy	e: 1400338-01 Date Re B4E0068 Date Ex	tracted: 20-May-2014 9:45
Analyte Conc. (pg/L)	DL EMPC	Qualifiers Label	ed Standard %R	LCL-UCL Qualific
2.3.7.8-TCDD ND	is the contract of the contra	estation IS 13C-2	,3,7,8-TCDD 55,2	25 - 164
1,2,3,7,8-PeCDD ND	0.285	13C-1	.2,3,7,8-PeCDD 46.3	25 - 181
1,2,3,4,7,8-HxCDD ND	0.510	13C-1	,2,3,4,7,8-HxCDD 36.4	32 - 141
1,2,3,6,7,8-HxCDD 0.769		G 13C-1	,2,3,6,7,8-HxCDD 39.8	28 - 130
1,2,3,7,8,9-HxCDD ND	0.836	13C-1	.2.3,7,8,9-HxCDD 37.0	32 - 141
1,2,3,4,6,7,8-HpCDD 13.0	· · · · · · · · · · · · · · · · · · ·	13C-1	,2,3,4,6,7,8-HpCDD 33.0	23 - 140
OCDD 74.9		13C-0		17 - 157
2,3,7,8-TCDF ND	0.179	13C-2	,3,7,8-TCDF 60.2	24 - 169
1,2,3,7,8-PeCDF ND	0.281		,2,3,7,8-PcCDF 54.8	24 - 185
2,3,4,7,8-PeCDF ND	0.278		,3,4,7,8-PeCDF 53.2	21 - 178
1,2,3,4,7,8-HxCDF ND	0.532		,2,3,4,7,8-HxCDF 47.3	26 - 152
1,2,3,6,7,8-HxCDF 0.560			.2,3,6,7,8-HxCDF 38.4	26 - 123
2,3,4,6,7,8-HxCDF 0:402			.3,4,6,7,8-HxCDF 39.3	28 - 136
1,2,3,7,8,9-HxCDF ND	0.0982		.2.3.7.8.9-HxCDF 40.4	29 - 147
1,2,3,4,6,7,8-HpCDF 5.81			.2,3,4,6,7,8-HpCDF 35.6	28 - 143
1,2,3,4,7,8,9-HpCDF ND	0,574	The state of the s	.2,3,4,7,8,9-HpCDF 38.2	26 - 138
ACDE		13C-(17 - 157
			2.3.7.8-TCDD 94.6	35 - 197
TOTALS				
Total TCDD ND	0.173			
Total PeCDD ND	$\mathbf{x}_{i}^{(i)} = \mathbf{x}_{i}^{(i)} + \mathbf{x}$			
Total HxCDD 3.00	4.08	and the second s		
Total HpCDD 26.2				
Total TCDF ND	-0.205			
Total PeCDF 1.45	1.63	1		
Total HxCDF	King 1 (1972)			
Total HpCDF 11.9	and the second s	enterination de la company		

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Sample ID: PRILD	DUP-01C						EPA M	thod 1613
Project: Lower	Solutions, Inc. Passiac River Study CSO/SWO y-2014 17:40	Sample Data Matrix: Aqueous Sample Size: 9.99 L		Laboratory Data Lab Sample: QC Batch: Date Analyzed:	1400338-02 B4E0068 24-May-14 02:4	Date Received: Date Extracted: 4 Column: ZB-5M	20-May-201	9:45
Analyte Co	nc. (pg/L)	DL EMPC	Qualifiers	Labeled Stan	dard	%R	LCL-UCL	Qualifier
2,3,7,8=TCDD		0.232	anamanani anamanani anamani an	IS 13C-2,3,7,8-T	CDD	51,9	25 - 164	
1,2,3,7,8-PeCDD	ND -	0.307		13C-1,2,3,7,8	-PeCDD	47.8	25 - 181	
1,2,3,4,7,8-HxCDD	NO TO THE RESERVE OF	0.395		13C-1,2,3,4,7	,8-HxCDD	42.2	32 - 141	
1,2,3,6,7.8-HxCDD	0.652	and the second s	G	13C-1,2,3,6,7	8-HxCDD	45.0	28 - 130	
1,2,3,7,8,9-HxCDD	0.419		G	13C-1,2,3,7,8	,9-HxCDD	43.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	10.4			13C-1,2,3,4,6	,7,8-HpCDD	38.8	23 - 140	
OCDD	72.8			13C-OCDD		45.0	17 - 157	
2,3,7,8-TCDF	ND	0.129	1	13C-2,3,7,8-1	CDF	65.2	24 - 169	
1.2.3.7.8-PeCDF	ND	0.220		13C-1,2,3,7,8	-PeCDF	69.2	24 - 185	
2,3,4,7,8-PeCDF	ND	0.247		13C-2,3,4,7,8		68.5	21 - 178	
1,2,3,4,7,8-HxCDF	0.412		G	13C-1,2,3,4,7	.8-HxCDF	60.8	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.422		13C-1,2,3,6,7	the street of the street of the	44.8	26 - 123	
2.3.4.6.7.8-HxCDF	ND	0.329		13C-2,3,4,6,7		44.2	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.159		13C-1,2,3,7,8		49.7	29 - 147	
1,2,3,4,6,7,8-HpCDF	4.14			13C-1,2,3,4,6	and the second of the second o	42.0	28 - 143	
1.2.3.4.7.8.9-HpCDF	0.548		G	13C-1,2,3,4,7	Programme of the second second	48.7	26 - 138	
OCDE	6.64			13C-OCDF		44.8	17 - 157	
and the second commence of the control of the contr				CRS 37CI-2,3,7,8-	rcdd	87.6	35 - 197	
TOTALS								***************************************
Total TCDD	ND	0.232						
Total PeCDD			and the second second second second	7.6				
Total HxCDD	3.64	The second secon						
Total HpCDD	22.3	Control of the Contro						
Total TCDF	ND	0.234			Barrier Johnson			
Total PeCDF	0.551	1.00						
Total HxCDF	- 3.40	4.57						
Total HpCDF								

Sample ID: PR10:	5LDEB					EPA Met	hod 1613
Project: Lov	rra Solutions, Inc. wer Passiac River Study CSO/SWO May-2014 16:30	Sample Data Matrix: Aqueous Sample Size: 9.94 L		Laboratory Data Lab Sample: 1400338-03 QC Batch: B4E0068 Date Analyzed: 24-May-14 01	Date Received: Date Extracted: :55 Column: ZB-5M	20-May-2014	9:45
Analyte	Conc. (pg/L)	DL EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifier
4,1,7,8-TCDD			and the second s	IS 13C-2,3,7,8-TCDD	77.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.126		13C-1,2,3,7,8-PeCDD	75.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.185		13C-1,2,3,4,7,8-HxCDD	65.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.185		13C-1,2,3,6,7,8-HxCDD	67.2	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.208		13C-1,2,3,7,8,9-HxCDD	63.0	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	0.424		13C-1,2,3,4,6,7,8-HpCDD	54.5	23 - 140	
OCDD	ND	0.486		13C-OCDD	61.0	17 - 157	
2,3,7,8-TCDF	ND	0.103		13C-2,3,7,8-TCDF	90.1	24 - 169	
1,2,3,7,8-PeCDF	ND >	0.108		13C-1,2,3,7,8-PeCDF	105	24 - 185	
2,3,4,7,8-PeCDF	ND	0.114		13C-2,3,4,7,8-PeCDF	104	21 - 178	
1,2,3,4,7,8-HxCDF	ND /	0.0283		13C-1,2,3,4,7,8-HxCDF	89.5	26 - 152	
1,2,3,6,7,8-HxCDF	ND /	0.0365		13C-1,2,3,6,7,8-HxCDF	67.5	26 - 123	
2,3,4,6,7,8-HxCDF	ND /	0.0177		13C-2,3,4,6,7,8-HxCDF	72.0	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.0239		13C-1,2,3,7,8,9-HxCDF	76.4	29 - 147	The state of the S
1,2,3,4,6,7,8-HpCDP	< ND	0.116		13C-1,2,3,4,6,7,8-HpCDF	61.0	28 - 143	
1,2,3,4,7,8,9,H6CDF	ND	0.0410	Annual Control of the	13C-1,2,3,4,7,8,9-HpCDF	73.4	26 - 138	
OCDE/	ND	0.156		13C-OCDF	61.1	17 - 157	
Jan ania and a second				CRS 37CI-2,3,7,8-TCDD	91.6	35 - 197	
TOTALS							
Total TCDD	ND	0.149					
Total PeCDD	and the second of the second o	where 0.335 is the contract of the contract				ting the second second second	C
Total HxCDD	ND	0.289	A STATE OF THE PARTY OF THE PAR	Lad no			
Total HpCDD	ND	0.424	A Committee of the Comm		the second s	The second second processing for the	
Total TCDF	ND	0:103		1 1/2			
Total PeCDF	ND	0.275					
Total HxCDF	ND	0.0391					
Total HpCDF	ND estimated delection limit				And the second s		



Title: Procedure for Verification of Total Tetra Chlorinated Dibenzo Dioxin

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR101 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Is the integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample at least 2.5 times background noise?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

If any errors are found, contact the laboratory project manager to request explanation/resubmittals.

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

PR101

1st TCDD	25.91	An1	2.58E+02	6.49E+02	Concentration	0.137
4		An2	3.91E+02		pg/L	•
Ion Ratio	0.66	Ai1	4.50E+05	1.04E+06	Reported	0.137
		Ai2	5.86E+05		pg/L	
-		Vx	10.200	L		
		RRF	0.898	(mean RRF)		
		Qi	2000	(pg)		

Sample ID	PR101CFRB	LQ	Retention Time	PR101TLC	LQ	PR101CFFB	LQ	PR101WWFB	LQ
Concentration	0.13719		25:91	0		0		0	

Calculated Total	0.137	0	0	0
Reported Total	0.137	ND	ND I	ND

Title: Procedure for Verification of Total Tetra Chlorinated Dibenzo Dioxin

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR102 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Is the integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample at least 2.5 times background noise?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

If any errors are found, contact the laboratory project manager to request explanation/resubmittals.

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

PR102

1st TCDD		An1	0.00E+00	0.00E+00	Concentration	0.000
4	etinit.	An2	0.00E+00			pg/L
Ion Ratio	0.00	Ai1	0.00E+00	0.00E+00	Reported	ND
		Ai2	0.00E+00			pg/L
		Vx	9.770	L		
		RRF	1.040	(mean RRF)		
		Qi	2000	(pg)		

Sample ID	PR101LPEB (primary)	LQ	PR101LPEB (secondary)	LQ	PR101LDEB (primary)	LQ	PR101LDEB (secondary)	LQ
Concentration	0		0		0		0	

Calculated Total	0	0	0	0
Reported Total	ND	ND	ND ND	

Title: Procedure for Verification of Total Tetra Chlorinated Dibenzo Dioxin

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR105 Validator: T. Solomon Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Is the integrated ion current of each non 2,3,7,8-substituted compound identified as present in the sample at least 2.5 times background noise?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

If any errors are found, contact the laboratory project manager to request explanation/resubmittals.

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

PR105

1st TCDD	24:30	An1	5.26E+03	1.33E+04 Concentration 0.239
4		An2	8.03E+03	pg/L
Ion Ratio	0.65	Ai1	5.98E+06	1.29E+07 Reported 0.240
		Ai2	6.93E+06	pg/L
		Vx	7.230	L
		RRF	1.190	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYWW-01A	LQ	Retention Time	PR1WWDUP-01/LQ	Retention Time
Concentration	0.43979	EMPC	24:12	0.21595	22:26
	0.24003		24:30	0.1407	22:28
	0.24284	EMPC	27:02	0	2,3,7,8-TCDD
	0		2,3,7,8-TCDD		

Calculated Total	0.923	0.357
Reported Total	0.923 EMPC	0.357

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR106 Validator: T. Solomon Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

1st TCDD	24:15	An1	1.37E+05	3.09E+05 Concentration 4.34
4	5	An2	1.72E+05	pg/g
Ion Ratio	0.80	Ai1	1.04E+07	2.35E+07 Reported 4.36
		Ai2	1.31E+07	pg/g
		Vx	5.090	g
		RRF	1.19	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYHP-01A LQ	Retention Time	PR1HPDUP-(LQ	Retention Time
Concentration	4.3604	24:14	4.8243		24:14
	2.2034	24:33	2.1805		24:32
	0.56675	24:55	0.53726		24:55
	0.19367 EMF	PC 25:34	0.22122		25:33
	0.9238 EMF	PC 25:45	1.2751		25:46
	1.6989	25:55	1.8622		25:55
	0.68066	26:05	0.60955		26:05
	0.20107	26:18	0.19684 EMF	C	26:17
	0.61858	26:25	0.68274		26:26
	0.53607	26:44	0.64745		26:44
	0.17007	26:51	0.15463		26:51
	2.3179 EMF	PC 27:03	2.1357		27:04
	0.15937	27:10	9.1517		27:17 (2,3,7,8-TCDD)
	2.3564	27:17 (2,3,7,8-TCDD	0.78007		27:32
	0.63343	27:33	0.15468		27:39
	0.11811 EMF	PC 27:38	0.27874		28:03
	0.28658	28:04			
Calculated Total	18.0		25.7		
Reported Total	18.0 EMF	PC	25.7 EMF	°C	

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR107 Validator: T. Solomon Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

1st TCDD	21.86	An1	2.76E+02	6.69E+02 Concentration 0.207
4		An2	3.93E+02	pg/L
Ion Ratio	0.70	Ai1	2.98E+05	6.87E+05 Reported 0.207
		Ai2	3.89E+05	pg/L
		Vx	9.880	L
		RRF	0.952	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYHD-01A L	LQ	Retention Time	PR1HDDUP-01A	LQ	Retention Time
Concentration	0.067 E	EMPC	25.91	0.20687	,	21.86
				1.8396	3	25.66

Calculated Total	0.067	2.05
Reported Total	0.067 EMPC	2.05

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR109
Validator: T. Solomon
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

1st TCDD	21.75	An1	4.54E+02	1.01E+03 Concentration	6.10
4		An2	5.59E+02		pg/g
Ion Ratio	0.81	Ai1	4.14E+05	9.41E+05 Reporte	ed 6.08
		Ai2	5.27E+05		pg/g
		Vx	0.371	g	
		RRF	0.952	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR1CSOCLYLP-01A	LQ	Retention Time	PR1LPDUP-01A	LQ	Retention Time
Concentration	6.076718		21:75	3.7474		21:73
	3.2819503		22:13	1.8904		22:15
	9.23389	•	25:59	1.0002	EMPC	24:09
				3.0817		25:60
					(2378 TCDD "U"	
					flagged - blank	
				1.7425	contamination)	25:83
					·	
Calculated Total	18.6	;		10.46	•	
EMPC TOTAL				11.46	EMPC	
Calculated total						
minus blank						
contamination				8.72		
EMPC Calculated						
total minus blank						
contamination				9.72	EMPC	
Reported Total	18.6	<u> </u>			EMPC	
Reported Total	18.6)		11.5	EIVIPC	

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR110* **Validator:** *T. Solomon* **Date:** *02/26/2016*

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

1st TCDD		An1	0.00E+00	0.00E+00 Concentration 0.00
4	1	An2	0.00E+00	pg/L
Ion Ratio	0.00	Ai1	4.37E+05	1.01E+06 Reported 0.00
		Ai2	5.68E+05	pg/L
		Vx	9.787	L
		RRF	0.952	(mean RRF)
		Qi	1	(pg)

Sample ID PR1CSOCLYLD-01A PR1LDDUP-01A LQ

Concentration 0 2,3,7,8-TCDD 0 2,3,7,8-TCDD

 Calculated Total
 0.0000
 0

 Reported Total
 ND
 ND

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR125 Validator: T. Solomon Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8 –TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

1st TCDD		An1	3.66E+03	0.00E+00	Concentration 0.069
4	and the second second	An2	4.08E+03		pg/L
Ion Ratio	0.00	Ai1	8.46E+06	0.00E+00	Reported ND
		Ai2	1.05E+07		pg/L
		Vx	10.014	L	
		RRF	1.190	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR103WWFB	LQ	Retention PR108CFFB	LQ	Retention Time	PR107CFRB	LQ	Retention Time	е
Concentration						0.064	28 EMPC	23:5	53
						0.103	33 EMPC	TCDD	

Calculated Total	0.000	0	0.168
Reported Total	ND	ND	0.168 EMPC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR126*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD		An1	0.00E+00	0.00E+00 Concentrat	tion 0.000
4		An2	0.00E+00		pg/L
Ion Ratio	0.00	Ai1	0.00E+00	0.00E+00 Re	eported ND
		Ai2	0.00E+00		pg/L
•		Vx	10.200	7 L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

	PR103LPEB		PR103LPEB	;		PR103LDEB		PR103LDEB		
	(primary)	LQ	Retention Time (secondary)) LQ	Retention Time	(primary)	LQ	Retention Time (secondary)	LQ	Retention Time
Sample ID	pg/sample		pg/sample			pg/L		pg/L		
Concentration										

Calculated Tota 0.000	0	0	0
Reported Total ND	ND	ND	ND

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR127*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	21.66	An1	1.26E+02	2.70E+02	Concentration 0.0700
4		An2	1.44E+02		pg/L
Ion Ratio	0.88	Ai1	3.51E+05	8.07E+05	Reported 0.0700
		Ai2	4.56E+05		pg/L
		Vx	10.039]∟	
		RRF	0.952	(mean RRF)	
		Qi	2000	(pg)	

Sample IDPR108CFRBLQRetention TimeConcentration0.06998721:66

0.12741 EMPC TCDD

Calculated Total 0.197
Reported Total 0.1970 EMPC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: PR134
Validator: T. Solomon
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8 –TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

[°] RRF for 2.3.7.8-TCDD native

1st TCDD		An1	0.00E+00	0.00E+00 Concentration 0.00
4		An2	0.00E+00	pg/L
Ion Ratio	0.00	Ai1	3.72E+06	8.34E+06 Reported 0.00
		Ai2	4.62E+06	pg/L
		Vx	9.730	L
		RRF	1.040	(mean RRF)
		Qi	1	(pg)

Sample ID PR1CSOCLYWW-02B PR1WWDUP-02B

Concentration 0 2,3,7,8-TCDD 0 2,3,7,8-TCDD

Calculated Total	0.000	0
Reported Total	ND ND	

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR135*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	21.68	An1	2.67E+03	5.90E+03	Concentration 4.23
4		An2	3.23E+03		pg/g
Ion Ratio	0.83	Ai1	5.41E+05	1.23E+06	Reported 4.24
		Ai2	6.91E+05	and seminar transmitter seminaries has mentered transmitters and mentered transmitters and mentered transmitters.	pg/g
		Vx	5.002	g	
		RRF	0.905	(mean RRF)	
		Qi	4000	(pg)	

Sample ID	PR1CSOCLYHP-02B LQ	Retention Time	PR1HPDUP-02I LQ	Retention Time
Concentration	4.2365	21:68	4.1949	21:66
	2.3606	22:11	0.38995	22:61
	0.58848	22:59	0.85656	23:79
	1.166	23:80	1.1727	23:97
	1.3288	24:00	0.4932	24:22
	0.55826	24:20	1.3767	25:44
	0.57161	24:64	0.19818	25:55
	1.3774	25:39	0 U	TCDD
	0 U	TCDD	0.5449	25:01
	0.58814	26:03		

1.9104 EMPC 0.469 EMPC 0.54062 EMPC

Calculated Total	12.78
EMPC TOTAL	
Reported Total	14.0

Note:1.24 pg/g TCDD result was qualified "U" which accounts for the difference in the reported vs calculated

	9.23
EMPC	12.15
EMPC	13.8

Note: 1.60 pg/g TCDD result was qualified "U" which accounts for the difference in the reported vs calculated

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR137*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	25.78	An1	1.93E+03	4.50E+03	Concentration 1.42
4	The second secon	An2	2.57E+03		pg/L
Ion Ratio	0.75	Ai1	3.04E+04	6.96E+04	Reported 1.42
		Ai2	3.92E+04		pg/L
		Vx	9.588	L	
		RRF	0.952	(mean RRF)	
		Qi	200	(pg)	

Sample ID	PR109CFRB	LQ	Retention Time	PR101HLLC	LQ	Retention Time
Concentration	0.20334	EMPC				
	1.4178		TCDD			

Calculated Total	1.62	0
Reported Total	1.62 FMPC	ND

Time

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR138*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	23.37	An1	9.25E+03	2.04E+04 Concentration	0.28
4		An2	1.11E+04		pg/L
Ion Ratio	0.83	Ai1	6.68E+06	1.47E+07 Reported	0.28
		Ai2	8.04E+06		pg/L
		Vx	9.660	L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR1CSOCLYHD-02B	LQ	Retention Time	PR1HDDUP-02B	LQ	Retention Time
Concentration	0.2746	64	23:37	7 0.136	6 EMPC	23:38

Calculated Total	0.275	0.136	
Reported Total	0.275	0.136 EM	PC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR140*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD		An1	0.00E+00	0.00E+00	Concentration 0.00
4		An2	0.00E+00		pg/g
Ion Ratio	0.00	Ai1	4.60E+06	1.03E+07	Reported 0.00
		Ai2	5.71E+06		pg/g
		Vx	0.080	g	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID PR1CSOCLYLP-02B LQ RETENTION TIME PR1LPDUP-02B LQ RETENTION TIME

Concentration

Calculated Total 0.000
Reported Total ND

ND 0

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR141*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	€* Emilion	An1	0.00E+00	0.00E+00	Concentration 0.00
4		An2	0.00E+00		pg/L
Ion Ratio	0.00	Ai1	4.64E+06	1.05E+07	Reported 0.00
		Ai2	5.86E+06		pg/L
		Vx	9.930	L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID PR1CSOCLYLD-02B LQ Retention Time PR1LDDUP-02B LQ Retention Time Concentration

Calculated Total 0.000
Reported Total ND

ND 0

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR142*

Validator: Elise Francken
Date: 02/26/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	27:02	An1	1.53E+04	3.37E+04	Concentration 0.390
4		An2	1.84E+04		pg/L
Ion Ratio	0.83	Ai1	7.52E+06	1.70E+07	Reported 0.387
		Ai2	9.48E+06	THE REAL PROPERTY AND A PARTY OF THE PARTY O	pg/L
		Vx	9.770]L	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID PR110CFR	RB LQ	Retention Time	PR104WWFB LQ	Retention Time	PR109CFFLQ	Retention Time
Concentral	0.38745	TCDD				

Calculated	0.387		0
Reported T	0.387	ND	ND

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR145*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	23.18	An1	1.77E+04	4.29E+04 Concentration 0.299
4		An2	2.52E+04	pg/L
Ion Ratio	0.70	Ai1	1.25E+07	2.85E+07 Reported 0.297
		Ai2	1.60E+07	pg/L
		Vx	9.780]L
		RRF	1.030	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYWW-01C LQ	Retention Time	PR1WWDUP-01C	LQ	Retention Time
Concentration	0.29707	23:18	0.13803	EMPC	23:18
	0.13272 EMPC	23:42	0.081034	EMPC	26:49:00
	0.095844	25:25:00	0.053028	EMPC	TCDD
	0.1157 EMPC	26:46:00			
	0.084793 EMPC	TCDD			

Calculated Total	0.726 W EMPC	0.272
	0.393 W/O EMPC	
Reported Total	0.726 EMPC	0.272 EMPC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR146*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8 –TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2,3,7,8-TCDD native

1st TCDD	23:21	An1	1.85E+05	4.23E+05 Concentrat 5.75
4		An2	2.38E+05	pg/g
Ion Ratio	0.78	Ai1	1.27E+07	2.86E+07 Reported 5.75
		Ai2	1.59E+07	pg/g
		Vx	9.990	g
		RRF	1.030	(mean RRF)
		Qi	4000	(pg)

Sample ID	PR1CSOCLYHP-01C	LQ	Retention Time	PR1HPDUP-01C	LQ	Retention	Time
Concentration	5.7466	;	23:21	4.4924			23:22
	3.5062	<u>.</u>	23:45	2.5546			23:45
				0.53646			24:14:00
				0.26763			25:03:00
	1.3511		25:17:00	1.1498			25:18:00
	1.4371		25.28	1.2168			25:29:00
	0.60632	<u>.</u>	25:39:00	0.54425			25:41:00
	0.78321		26:04:00	0.19202			25:55:00
				0.70112			26:06:00
	0.21749)	26:26:00	1.0379			26:49:00
	1.4701		26:47:00	0.77645			27:23:00
	0.23843	•	26:56:00	0.21218			27:31:00
	O	U	TCDD	0.36962			27:59:00
	0.77857	•	27:22:00				
	0.40893	}	27:57:00				
	0.48465	EMPC	24:13:00	0.46813	EMPC		26:26:00
	0.21143	EMPC	25:02:00	0.16929	EMPC		26:56:00
	0.53643	EMPC	26:26:00	1.2801	EMPC	TCDD	
Calculated Tota	al 16.5		ı	14.1	•		
EMPC TOTAL	17.8	EMPC		16.0	EMPC		
Reported Total	19.4	EMPC		16.0	EMPC		

Note:

2,3,7,8-TCDD was found in the sample @ 1.60pg/g and Qualified "U" . Form 1 for total needed corrected to account for this.

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR147*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page.*

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	Samurati	An1	0.00E+00	0.00E+00	Concentration 0.00
4		An2	0.00E+00		pg/L
Ion Ratio	0.00	Ai1	4.60E+06	1.03E+07	Reported 0.00
		Ai2	5.71E+06		pg/L
		Vx	0.080	g	
		RRF	1.040	(mean RRF)	
		Qi	2000	(pg)	

Sample ID	PR1CSOCLYHD-01C LQ	Retention Time	PR1HDDUP-01C LQ	Retention Time	
Concentration	0	TCDD	0.06836 EMPC		23:20
			0	TCDD	

Calculated Total	0.000	0
Reported Total	ND ND	

0.06836	W	EMPC
0.0684	E۱	1PC

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR149*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8 –TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD	23.19	An1	1.30E+04	2.79E+04 Co	ncentration	17.521
4		An2	1.49E+04		pg/g	
Ion Ratio	0.87	Ai1	1,77⊑+07	4.00E+07	Reported	17.486
		Ai2	2.23E+07		pg/g	
		Vx	0.077	g		
		RRF	1.030	(mean RRF)		
		Qi	2000	(pg)		

Sample ID PR1CSOCLYLI	P-01C LQ	Retention Time P	R1LPDUF LQ	RT	PR105LPEB	LQ	RT
Concentrat	17.486	23:20	18.698	23:1	9		
	8.9406 EMPC	2,3,7,8-TCDD	12.184	23:4	4		
			11.273	25:27:0	0		
			10.745	26:47:0	0		
			15.965 EMPC	2,3,7,8-TCDD			

Calculated	26.4 W EMPC	68.9 W EMPC	0
	17.486 W/O EMPC	52.9 W/O EMPC	
Reported T	26.4 EMPC	68.9 EMPC	ND

Results - Rev. 2

Author: Diane Waldschmidt 02/25/2016

SDG: *PR150*

Validator: Elise Francken
Date: 02/25/2016

Purpose: The purpose of this procedure is to provide the basis for evaluation of Total Tetra Chlorinated

Dibenzo Dioxin (TCDD) results. These values are not evaluated during the isomer specific data validation task. Therefore this procedure has been developed to define the process used to assess

completeness and accuracy of the TCDD data set.

Limitations: This procedure was developed based on the fact that the 2,3,7,8 –substituted isomer specific data

validation has already been performed. Therefore quality control criteria previously evaluated are not covered in this procedure (ex. holding time compliance, review of field chain of custody

records, etc). This procedure alone is inadequate for data verification.

Procedure:

1. Verify that all necessary raw data are present to support the Total TCDD result reported.

Are selected ion current profiles (SICPs) for ions 319.8965 and 321.8936 representing all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin reported for each sample in the delivery group present in the data package?

Yes No NA

Are integrated areas present for both the primary and confirmation ions for all peaks 2.5 times above background noise in each sample SICP?

Yes No NA

Are instrument quantitation reports containing relative response factors for 2,3,7,8-TCDD, area counts for the 2,3,7,8-TCDD labeled analog and sample preparation information present for each sample in the delivery group?

Yes No NA

If any of the required deliverables are missing, contact the laboratory project manager to request explanation/re-submittals.

2. Verification of Total TCDD results reported for each sample.

Is the retention time of each non 2,3,7,8-substituted compound identified as present in the sample within the window established by the window defining mixture, for the tetra chlorinated homologue?

Yes No NA

Are all peaks meeting the requirements described above included in the laboratory's calculation of Total TCDD?

Yes No NA

Choose a minimum of one non 2,3,7,8-substituted compound identified and verify by recalculation the concentration found using the integrated area responses of the two characteristic ions identified on the SICP and the following equation: **See attached calculation page.**

(area of analyte^a)(labeled analog^b [ng])
(RRF^c)(area of labeled 2,3,7,8-TCDD^a)(sample extracted [g])

^a Combined area of M1 and M2 ions

Calculate the sum of all non 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxins and 2,3,7,8-substituted tetra chlorinated dibenzo-p-dioxin identified in each sample. Compare result obtained with that found on the Form 1. *See attached calculation page*.

Notes:

Non-detect results for individual components are not included in the total TCDD value. In these cases "zero" concentration is contributed to the summed total TCDD result.

Results flagged as Estimated Maximum Possible Concentration (EMPC), when present for any one or multiple individual component isomers, were included numerically in the summed total TCDD result. However, the final total TCDD result in these cases was also qualified as an EMPC.

No other data qualifiers were included or considered in the summation of individual component concentrations or the resulting total TCDD value.

Results flagged "R", rejected, are not used/included in the calculation of total TCDD.

Were any errors found?

Yes No NA

^b Amount of labeled 2,3,7,8-TCDD in extract

^c RRF for 2.3.7.8-TCDD native

1st TCDD		An1	0.00E+00	0.00E+00 Concentration 0.000
4	Annual Comment	An2	0.00E+00	pg/L
Ion Ratio	0.00	Ai1	0.00E+00	0.00E+00 Reported ND
		Ai2	0.00E+00	pg/L
		Vx	9.770	L
		RRF	1.040	(mean RRF)
		Qi	2000	(pg)

Sample ID	PR1CSOCLYLD-01C LQ	Rention Time I	PR1LDDUP-01C LQ	Rention Time PR105LDEB L	LQ Rention Time	
Concentration	0	TCDD	0	TCDD		

Calculated Total	0.000	0	0
Reported Total	ND	ND	ND